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RURAL OECONOMY:

OR,

E S S A Y S

ON THE

Practical Parts of Husbandry.



THE
JOURNAL OF
RURAL ECONOMY



Practical Parts of Husbandry

ECONOMY.

RURAL OECONOMY:

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ON THE

Practical Parts of Husbandry.

Designed to explain several of the most important Methods of conducting FARMS of various Kinds; including many useful Hints to GENTLEMEN FARMERS relative to the oeconomical Management of their Business.

Containing, among other ENQUIRIES,

Of that Proportioned Farm, which is of all others the most profitable.

Of the best Method of conducting Farms that consist all of Grass, or all of Arable Land.

Of the Means of keeping the Year round the most Cattle on a given Quantity of Land.

Considerations on the Oeconomical Conduct of Gentlemen Farmers.

Of the cheapest Way of manuring Land.

Of the Comparative Profit of Farming different Soils.

Of the New Husbandry.

Of Periodical Publications concerning Rural Oeconomics.

To which is added,

The RURAL SOCRAATES:

Being MEMOIRS of

A COUNTRY PHILOSOPHER.

By the AUTHOR of the FARMER'S LETTERS.

*Hoc Opus, hoc Studium parvi properemus et ampli
Si Patriæ volumus, si nobis vivere cari.*

D U B L I N :

Printed for J. EXSHAW, H. SAUNDERS, D. CHAMBERLAINE,
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S M T W O

Practical Facts of Librarianship.





Rural Oeconomy, &c.

 HERE are few subjects that have employed more writers than agriculture, and few that have been treated in a manner so little satisfactory to readers of real practice. In the sketches which I have already ventured to the public eye (as well as the papers now before me,) I have attempted to elucidate many points which preceding authors have totally overlooked.

The œconomical management of a farm is indisputably a point of no trifling importance; for the best instructions may be laid down to cultivate the most profitable of vegetables, and in the clearest and most sensible manner;—yet, all will signify but little, if the general tenour of a farmer's conduct be not so well founded on œconomical principles, as at all times to *be able* to execute what he thinks, and is convinced, is right.

But the reader will allow me to use the words *Rural Oeconomy* in their enlarged sense, and not merely confined to the practice of *frugality*, which

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is the common acceptation of *œconomy*. *Frugality* conveys but a narrow idea; a man may undoubtedly be very frugal, and yet a vile husbandman: we must therefore understand by *œconomy*, the system of GENERAL MANAGEMENT, which embraces a variety of objects, and all equally important. The following essays are designed to explain many parts of this general management, and to attempt to reduce multifarious, fugitive subjects, to some degree of order, and even principles. This design, whether meritorious or not, is new; for the slight random touches that are met with in a few books, however just and pleasing, are totally incomplete; not being meant by their authors as any thing further than those chance ideas, which occur accidentally when writing on foreign subjects.

So extremely barren do I find my collection of books of husbandry, on this subject, that upon revision of these papers, I venture to assure the reader no book ever published has afforded me a single page.

I do not mention this, as a sign of any peculiar merit in my own work; for doubtless I could have *enriched* it from those of others. When any matter has been much treated of by former writers, it is incumbent on a new one to pay a proper deference to *authority*, and make his acknowledgments to former authors; but I have no such duty to fulfil; the writers on agriculture, whose works I have read, have slighted this subject, or at least neglected it: if I was to extract from all with which I am acquainted, every paragraph they contain, I should not find the amount to be fifty pages; and half may with due modesty be supposed not worth transcribing.

If

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If my subject was more extensive, the use of others works would be no trifle; I am far from talking of the supply of my own page without assistance, through vanity: on the contrary, no one of common sense can deny the vast advantage of *judicious collections*. I know not for instance of a more useful work, than a collection of all the *truly valuable* in every book of husbandry! that the benefit of reading might be reduced to the labour of a few months, instead of twice as many years. But the mischief of collectors, is the saving the chaff as well as the corn. We have had twenty collections, and bodies of husbandry; and beyond all doubt, every *practical* reader will find in each of them as much rubbish as good sense. The misfortune is, very good writers sometimes recommend very ridiculous practices; now a person who collects from the works of all, should sit in judgment on every article, and always distinguish between the metal and the dross; if the latter is always rejected, and the former universally retained, there can be no doubt of the utility of the collection.

Respecting the present sheets.

The principal part of the last seven years I have lived in such retirement, and given so unlimited an attention to matters of husbandry, that my constant employment, as well as amusement, when out of my fields, has been the registering experiments; minuting remarks on most of the branches of agriculture; and forming calculations relative to rural œconomy:—and my papers multiplied until they grew into volumes. I have often altered and corrected them—and in proportion as I gained experience, endeavoured to improve them. Upon reviewing some of these works, I have been perhaps imprudent enough to think

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they might be of use to others as well as myself, and venture these essays (the product of my leisure hours some years ago) under that idea to the public eye.

It has been my endeavour to elucidate several points in rural œconomy, at present much in the dark; and this elucidation I offer wholly as the work of experience: in other words, I have minutely the situations in which I have more than once found the want of advice—not the vulgar, *marked* advice of every puppy that thinks himself qualified to offer it, but the sober, rational result of others' experience.

I am in such a situation, it is of importance which way I determine; you have been in the same, how did you act, and what was the consequence? This is the only sensible way of asking advice in any affair whatever. Nor is there any thing so paltry, so futile, and so false, as the common cant condemnation—*Aye! he would never take any advice!* As if it was within the bounds of humanity for one person *fairly* to execute another's ideas in his own affairs, and contrary to his own opinion.

I take a hint from this idea of general advice, and offer mine in husbandry matters, merely as the transcript of my experience; and when I wander beyond the experience (as is absolutely necessary sometimes,) yet I aim at being consistent with it. If a person will but speak plain facts in an honest manner, mankind must be the better for him; it is affectation which prevents this ingenuousness, which gives the flourishing of reasoning and conjectures instead of facts, and observations founded on fact.

There would be an impropriety in terming the intelligence I here venture to the farming reader, *experiments*; and yet I deduce them so much from

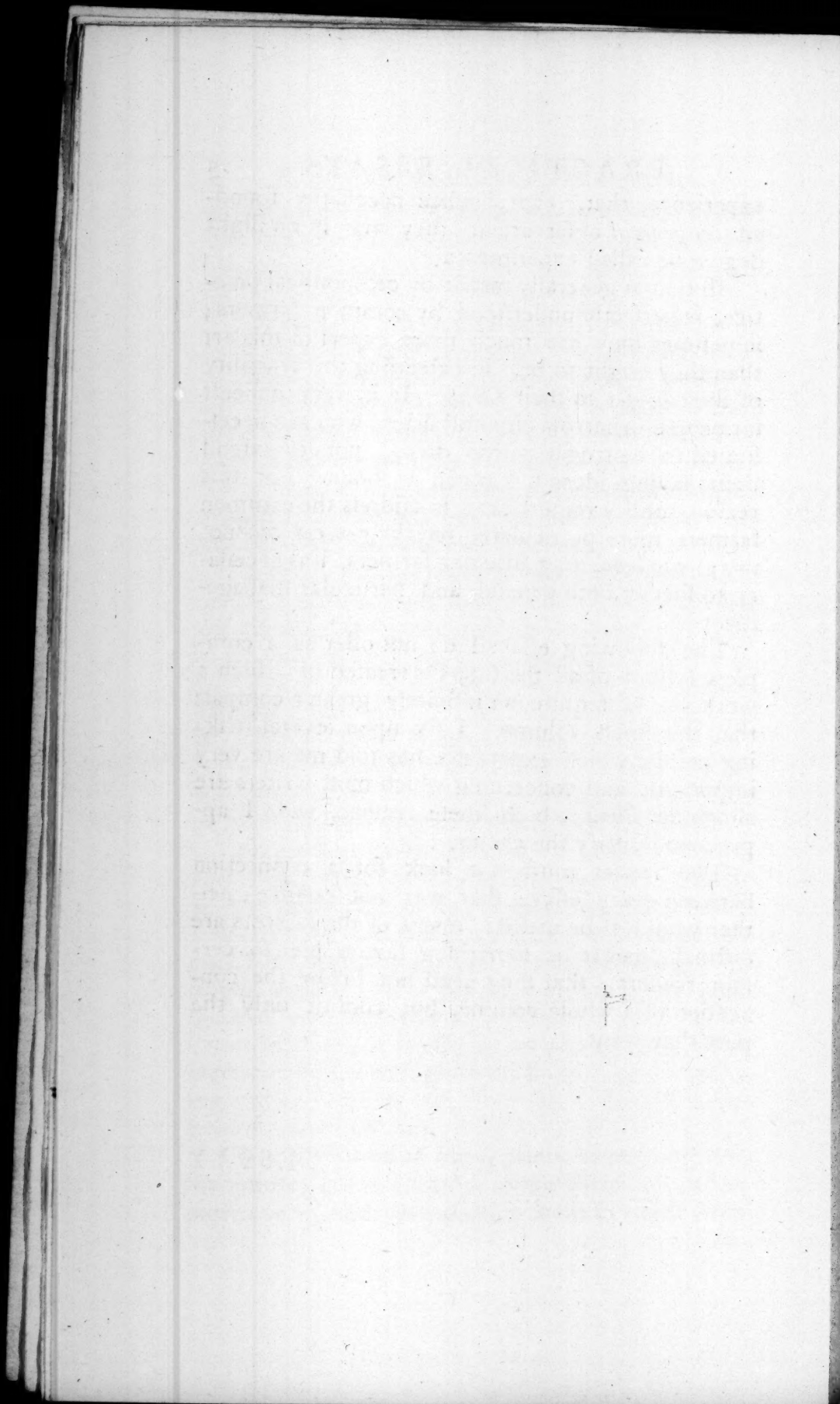
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experience, that, except when necessarily founded on *general* observation, they may in no slight degree be called experimental.

All that is generally meant by *œconomical* practice, is perfectly understood by common farmers; sometimes they are much more expert in this art than they ought to be, in extending the frugality of their *houses* to their *farms*. It is very difficult for people in narrow circumstances, who are necessitated to be frugal within doors, not to extend their saving ideas too much without. For this reason, utility requires me to address the common farmers more particularly on the *general* *œconomy*; whereas, to gentlemen farmers, it is necessary to specify both general and particular management.

The following essays I do not offer as a complete system of all the subjects treated of; such a work would require an infinitely greater compass than this small volume. I fix upon several striking points, which experience has told me are very important, and concerning which most writers are altogether silent: both these reasons, will, I apprehend, justify the choice.

The reader must not look for a connection between every essay; that was not possible; neither would it be useful: many of the subjects are distinct; and it is something favourable to certain readers, that they need not follow the connection of a whole volume, but consult only the part they want.





ESSAY I.

*Of that proportioned Farm, which is of all others
the most profitable.*

I HERE enter upon a subject in which my own ideas have not that perspicuity I could wish, but an attentive disquisition will, at the same time, give them a greater clearness, and explain to the reader several points totally unnoticed by all former writers. In this enquiry I do not mean to shew what farm will yield the greatest income, because, in most cases, *the largest* will, in that respect, be *the best*; but I would discover if there be not a peculiar *proportion* between the parts, remarkably favourable to profit and convenience; and this not in farms only of a certain rent, but in all sorts.

The first division of a farm is into arable and pasture land; this at once points out a multitude of circumstances in the arrangement of a business that call undoubtedly for some proportion of the kind, which I am considering. The arable land requires draught cattle to cultivate it, and carry out its products; and the grass must be applied to the feeding or fattening of other cattle. If a farm is totally arable, or totally grass, the proportions,

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tions, of which I am speaking, do not embrace (especially in the latter case) so many circumstances, as they otherwise would; but many nevertheless remain.

The want of proportion is to be observed every day. Nothing more common than to see farmers buying hay under many disadvantages: this results entirely from a disproportion between the grass and arable lands of a farm.

Oats they often purchase, and perhaps with a heavy carriage upon them; this comes from a want of proportion in the arable crops.

Cattle are very often put out to joist in a neighbour's straw yard; by which means much manure is lost: this evidently arises from the want of a requisite attention to the proportion between the cattle and the corn crops.

Many farmers cultivate turneps with great care, and raise fine crops of them, but want cattle in the winter to feed them to advantage: they are then to be sold to somebody else; and, as they *must* be sold, it is twenty to one, to disadvantage. The want of proportion is here plain enough.

In many situations, the dependance of a whole farm for manure is on the straw yard: if, in such a case, the farmer does not properly proportion his arable crops which feed cattle, to those which litter the yard, and both these to the quantity of his grass fields, the farm will be long enough before it gets well manured.

These causes might be multiplied almost *ad infinitum*; but a few are sufficient to explain the idea of *proportion*.

Farms vary so prodigiously, that no absolutely accurate corollaries can be drawn from the most judicious reasoning on this subject: the only method of treating it, is to state some points, and then

then reason upon the proportion between those and others.

Suppose in the stocking of a small farm, that twenty acres of arable land *per* horse, is the quantity to be managed properly by the team; four horses will, in that case, cultivate eighty acres of arable. Now what are the proportions which can be drawn from this one fact?

Let me here remark that I state, in all these points, not what is every where found in common management, but what ought to be. Many farmers are such bad managers, that scarce one proportion is to be found throughout their farm.

Eighty acres of arable land, managed by four horses, may, if the soil is not heavy, be thrown into fourths; one sown every year with turneps, one with spring corn, one with wheat, and one with clover. If the soil is heavy, a fallow, or some other fallow crop, should be substituted instead of turneps. If a fourth be not clover, the four horses cannot manage the farm properly.

Before we proceed farther, new proportions arise: the clover, we will suppose, totally keeps the horses in green food and hay; this is common husbandry, wherever clover is known. We will allow each horse two tons of hay per winter, which will leave him a little to spare for summer. The four will, therefore, eat eight tons; this, at two mowings, may be reasonably called four acres. For the summer food, we will allow the four horses six acres of green clover. Thus the whole quantity eat by the four horses is ten acres.

As much more is to spare; hence we must suppose other cattle to be kept: but further—there are twenty acres of wheat, twenty of spring corn, and twenty of turneps; besides twenty acres of stubble for littering the yard. Part of the
 straw

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straw of the wheat must be applied to littering the four horses, the rest given to the cattle. Here, therefore, is the following winter food :

20 acres of turneps,
20 tons of clover hay,
20 acres of spring corn straw,
and part of 20 acres of wheat straw.

The next enquiry is the cattle these will winter. The food is all well adapted to various kinds; but I shall suppose them heifers, or steers, or oxen, for fattening. The order in which they should be fed, is to give them the wheat straw first with some turneps; next the spring corn straw with some turneps; and then the clover hay with the rest of the turneps; which progression will carry them forward in flesh, and get them in fine order to turn into grass to complete the fattening. The number I should assign (in this management) to such a quantity of food is thirty head. Thirty middling steers would be well wintered on this food. If the beasts are above the middling size, about twenty or twenty-five. The reader should remember they are not fatted; only *kept*; all that is wanting, is to keep them rather on the improving hand.

The quantity of winter food points out in this manner the number of cattle to be kept, and this will discover the quantity of grass land such a farm ought to have: this is at once determined, for we may allow an acre per beast, or thirty acres: but it would be prudent in such a farmer always to have a stock of hay before hand, to use in case of accidents, such as a bad time, to make his clover hay, &c. &c. &c. for this purpose he should have five acres of mowing grass every year; or, in all, thirty-five.

Thus

Thus we find the number of horses a clue to discover the whole œconomy of a farm. I have taken this as one instance to explain what I mean by *proportion*. It plainly appears from hence, that it is a matter of vast consequence: almost any other point to begin with, would have yielded the same information; for instance, the annual quantity of wheat sown, of spring corn, &c. &c. or from different instances. But the connection is pursued in a clearer manner from the number of horses.

If any of the proportions in this instance are broken, the whole chain is affected; take one horse from the four, all is varied at once; instead of a proper quantity of arable land per horse, a larger, or a less portion is assigned; the very stock of the grass land is at once affected; so much does every part of a well arranged farm depend on each other.

Great variations are made by common farmers, without any important effects ensuing: this may seem to contradict my assertions; but most of them enter into farms with so little idea of just proportions, that such never existed in their farms, consequently, there were none to break; and yet common farmers cannot damage even their faulty proportions, without feeling the ill effects. But they are, in general, so burthened with a too great quantity of land for their fortunes to manage, that they seldom remedy any thing of that sort. Instead of the profitable management of turneps and clover, they very often omit those crops, for want of money to purchase the cattle to eat them: the land does not from this omission lay fallow, but is sown with corn; thus the soil is exhausted, and all general management presently in confusion.

Having

Having thus explained, by an instance, what is the proper meaning of the proportions of a farm in this case; I shall, in the next place, sketch such proportions as I apprehend to be the most profitable. In this enquiry some latitude must be used, because real farms are so prodigiously various. Perhaps a mere grazing farm may be found, in many countries, the most profitable of all that are commonly managed; but I shall reject those, as they would furnish, in this enquiry, very few useful conclusions. I shall therefore suppose a farm that contains many parts, and is conducted on a various plan, embracing some new discoveries in agriculture; proper, in a word, for a gentleman, or, at least, a farmer, whose ideas are more enlarged, than those of many of his brethren: but it will be necessary, at the same time, so to suppose matters, that if a common one hired such a farm, the sketch I offer may be of service, though he rejects any articles of culture, but such as are absolutely usual.

It would lead me into too wide a disquisition to determine, of various sized farms, which is proportionably the most profitable: all that utility here requires, is to state proportions, that one well designed both for convenience and profit, and of such an extent as not to fall below the proportional profit of longer farms, for want of more land. To have every thing complete, and well contrived, for mutual support, a farm must necessarily be a large one. But here I am sensible of the disadvantage of moving upon untrodden ground, and feel at every step the want of former writers, to take warning by their mistakes; nor is it any mortification to me to think that my humble labours will, in future times, be no more than a canvass for others to paint on. I shall at least be
a canvass;

a canvass; which is more than any former writer is to me. The want of something of a guide of this sort, occasions my entering into more explanations than otherwise I should. The person who enters on a subject that has been already treated by others, is in little want of explanations; for, as the first writers generally explain most, he takes that advantage, and falls into the hands of readers, who know enough of the subject to want no introductory explanations. This is not my case; I must therefore proceed accordingly.

A small farm may (as far as it extends) be as profitable as a large one; but we are not to reason upon uncommon instances; many circumstances of management require a large business to be carried on with advantage. A few will prove it. The neighbourhood of a great city, or town, requires that the farmers purchase manures; but that is a work that goes on very poorly, if a team is not kept on purpose.

It is but a poor business that will not employ distinct teams for both plowing and harrowing, and odd cattle besides for rolling. A business should be considerable enough also for the employment of a bailey; not one that has the whole management of the farm in his hands, but who is kept for the mere underwork, the overseeing labourers, &c. &c. &c. I give these instances by no means as a complete list, only to shew that there are points in which a great farm has the advantage of a small one, merely from being great.

But to come to particulars.

I propose that six ploughs be kept *constantly* at work: four ox ploughs and two horse ones, or four horses and eight oxen. One pair of harrows must be supposed always to attend these ploughs, or three horses. Sometimes, upon extraordinary occasions,

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occasions, one of the ploughs may stop for the working another pair of harrows; but those will be only in a hasty time, when the corn is laid in *above ground*, instead of *under furrow*.

One horse must also be assigned for rolling. Two for plowing between the rows of plants.

Four others should be allotted for bringing manure from the nearest city or town.

There are so many situations wherein this is practicable, that it would be unpardonable to omit the supposition. But this team must be employed (except when the horses assigned to the business of tillage are idle through bad weather) in carrying out the corn and other products of the farm.

Four oxen must be allotted for sundry articles of carting; either in carts or a waggon: such as wood—food for cattle in winter—stubble—straw,—&c. &c. &c.

Two oxen should constantly be kept at cart the whole year round, with two small three-wheeled carts, in * carrying dung, clay, composts, &c. &c. &c. And two horses I allow for extras.

By means of such a disposition of the teams, none of the work will stand still, that the rest may be better executed. In common farms, all common work is at a stand, when a little that is extraordinary is to be done. To carry out corn, stops the ploughs perhaps at a critical season: the fallows

* This allotment would be much too small, were it not that the horses, &c. employed in tillage, and the extra ones, are all to be set to this work, at all leisure times, which may undoubtedly be reckoned to equal the extra horses being always at it. Horses, because called extra, are not therefore to stand still. This supposition is very moderate.

are frequently seen over-run with weeds, because it is seed time: in a word, some business is ever neglected, that the rest may be decently performed.

But with such a disposition of draught cattle, as I have sketched, all kinds of work will go on briskly and regularly; the interruptions of hay and harvest will be nothing for the two extra horses; and another allowed for rolling, and two for horse-hoeing, with some spare time from the harrowing team, which it must have, will answer all carting of that sort, and much other.

I am the more particular in this part of my scheme, as the inconveniences of the common opposite conduct are surprizingly great and obvious. One can scarcely walk over a farm, without remarking the neglect of some work or other of importance, arising from the want of a proper number of draught cattle: by the end of harvest, the fallows are, many of them, either over-run with weeds, or at least very deficient in pulverization: the farmer's team has been employed in getting in his corn; for that business which is soonest to supply his purse, will be sure to be done, at the expence of all other work. In seed time, favourable seasons are either lost, or but partially and slowly used, for want of ploughs and harrows: perhaps the farmer has nearly or just ploughs sufficient, but can ill spare any horses for harrowing. In such a case, the latter work will be wretchedly neglected: seed will be sown under furrow that ought to be harrowed in; and many fields only half harrowed; the consequence of which, in numerous instances, is very fatal. In the article of manuring, this is yet more observable; for, instead of carting the farm-yard dung
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on to a compost hill, to mix with marle, earth, or clay; or carting the latter into the yard, and foddering upon it; the dung is often carried directly on to the land, although the soil be the least proper for such treatment; and this only to save a carting, while the horses or oxen are employed in tillage.

And however numerous the fences may be, that the farmer has found necessary to make, and consequently how great so ever the quantity of ditch-earth may be, that lies ready for carting on to the land, yet none or little of it is moved, for want of draught cattle.

Nor are common farmers more considerate with regard to taking advantage of the neighbourhood of any great city or town in the purchase of manures so raised: when corn or hay is carried out, they may perhaps load back with dung, or ashes, &c. but as to keeping a team merely for road business, scarce one of them had ever such an idea.

It would be endless to multiply such instances, as far as could with ease be done; but these are sufficient to shew the necessity of providing teams for all sorts of work.

We must, in the next place, proceed to set all these cattle to work, and see what quantity they will be able to perform.

The six ploughs, at the rate of each doing an acre a day for 300 days, will amount to 1800 acres plowed once.

But lest objections should be made against the allowance of only thirteen days idleness, besides Sundays, I shall suppose the ploughs to move 270 days in the year; the plowing teams to be employed (in case of frost, or excessive wet weather, &c.)

&c.) thirty days on other work; and to be absolutely idle thirteen days. I had six horses at work through the years 1766 and 1767, both remarkable wet, and they did not stand still ten days in the two years. Whatever be the weather, a farmer should always have work of some kind or other ready for his plowing teams, when thrown out of their own: thirteen days of absolute idleness are therefore a large allowance. Their working two hundred and seventy days amounts to sixteen hundred and twenty acres. Let us next examine what sized and proportioned farm this plowing forms when divided.

160 acres plowed six times	-	-	960
160 ditto three times	-	-	480
160 ditto once	-	-	160

This division gives us two kinds of farms, as follows:

160 acres plowed six times for turneps, &c.
 160 ditto three times for spring corn.
 160 ditto once for wheat.
 160 of clover, one year old.
 160 ditto, two years old.

800 of arable land.

Or there may be only one clover crop, in which case, the arable land will amount to six hundred and forty acres.

The farm to be managed by a team, that plows about 1600 acres annually, might be sketched in a great variety of other ways; and it will aid the

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general

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 general design of these essays to state a few of
 them.

100 acres six times for turneps	-	600
100 ditto three for spring corn	- -	300
100 ditto once for wheat	- -	100
100 clover, one year.		
100 ditto, two years.		
50 ditto three times for potatoes	-	150
50 acres six times for cabbages		300
50 ditto wheat twice	- -	100
50 ditto spring corn once	- -	50
700		1600

100 of lucerne, fainfoine, and burnet.

800 total.

100 acres of wheat once	- -	100
100 of barley thrice	- -	300
100 of oats twice	- -	200
100 of turneps five times	- -	500
100 of cabbages five times	- -	500
100 clover, one year.		
100 ditto, two years.		
700		1600

But for the sake of the variety which there
 ought to be in a farm of this kind, that is sketched
 for the sake of the conclusions to be drawn from
 it, I shall adopt the following, which is rather an
 improvement upon the second.

100

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100 acres of wheat once plowed	-	100
50 ditto twice	- - -	100
100 ditto of spring corn thrice	- -	300
50 ditto pease twice	- - -	100
100 ditto of turneps five times	-	500
50 ditto of cabbages five times	-	250
50 ditto of potatoes three times	- -	150
50 ditto of carrots twice	- -	100

1600

50 ditto lucerne.
 50 ditto sainfoine.
 20 ditto burnet.
 100 clover, one year.
 100 ditto, two years.

870 total.

I must upon this arrangement remark, that the common crops are infinitely beyond the uncommon ones; so that were the scheme in execution, the cultivator would not have reason to dread the trial of vegetables, not every where used.

But to state schemes of conducting farms in this enlightened age, with no eye to modern improvements, would be the height of ridicule. Sainfoin, cabbages, potatoes, carrots, are not common crops in every part of England, like wheat and barley; but every one of them are common in one part or other of the kingdom: if nothing was to be supposed on paper, but what common farmers every where cultivated, turneps and clover would be rejected. I do not imagine above half, or, at most, two thirds of the nation cultivate clover, and yet to interdict it, would be using much

the same language, as to tell a man that he might farm how he pleased, but should not use a plough. It is a surprizing number of years that are necessary, firmly to introduce the culture of a new plant. What an amazing instance is that of clover? And if gentlemen of the present age had not assumed a spirit in agriculture vastly superior to former times, I much question whether that excellent vegetable would make its way fairly through the island in a thousand years.

Cabbages and lucerne are at present much more confined than sainfoin; they have not been introduced so long by, perhaps, two centuries: but no vegetable can have greater merit than both. Many of the nobility and gentry, in the north of England, have cultivated cabbages with amazing success these dozen years. A vegetable which supplies the place of turneps, and even exceeds that root upon heavy clay soils: where turneps cannot be cultivated, it must make its way; and, in this age, fast too.

The benefit of lucerne has been tried also, with the greatest success, upon various soils, in most parts of the kingdom: this plant will likewise become common in time. Burnet I introduce only for a peculiar use; viz. the feeding sheep late in the spring: I do not apprehend, from the experience I have had of it, that it is for other uses comparable to clover, sainfoin, or lucerne.

Now to sketch improvements in husbandry; when these vegetables are so well known, and to take little or no notice of them, would be voluntarily shutting one's eyes to day-light, and then complaining of darkness.

It is the business of the nobility and gentry who practise agriculture, and of authors, who practise and write on it, to help forward the age;
to

to try experiments on newly introduced vegetables, and if they are found good, to spread the knowledge of them as much as possible; to endeavour to quicken the motions of the vast but unwieldy body, the common farmers. But to omit this either in practice or in writing, is to reduce themselves to the level of those whom they ought to instruct; and to submit to that ignorance and backwardness, which left to themselves, cloud any country, in an enlightened age, with the darkness of many preceding centuries. Common farmers love to grope in the dark: it is the business of superior minds, in every branch of philosophy, to start beyond the age, and shine forth to dissipate the night that involves them.

But to return.

The arrangement of crops, in the preceding sketch, is so disposed, that the farm must always be clean and in good heart; and this independently of manuring.

In 750 acres in tillage, only 300 are corn; the rest are ameliorating crops, that clean and enrich the soil, such as clover, turneps, cabbages, &c. &c. This is a most important point; which should never be overlooked, or in any wise neglected; a truly good farmer ought never to sow corn upon an uncertainty; his land should be so thoroughly clean, and in such great heart, as to yield an undoubted certainty of a crop. In answer to such an assertion, I am sensible many will at once talk of seasons, but from much observation, and some experience, I have great reason to believe, that bad seasons fall infinitely the heaviest upon bad farmers: nor should it be forgot, that unfavourable times are generally such to corn; not to grasses, roots, &c. &c. Wheat is certainly subject to some distempers that come from season;

but sow barley or oats, turneps or clover; plant cabbages, potatoes, &c. and observe fields of lucerne or sainfoin: let any or all of these be in the soils that agree with them, and perfectly well managed, and then take an account of seasons; I am confident there will never be a bad crop. Too much attention should not be given to complaints of the seasons, respecting any lands, until it is thoroughly *known* whether the whole process of the management was such as the vegetable required. Bad husbandry is too often laid to the account of seasons.

The grand article of all husbandry, is the keeping great stocks of cattle; for without much cattle, there cannot be much corn. Even those farmers who would make corn their principal produce, should, in one sense, let it be only a secondary aim; since a great plenty of cattle should be considered as the means to attain that end.—In the farm I have sketched, it is evident enough, only from a partial view (the natural grass not being in the account) that the number of cattle must be very considerable.

It is further apparent, from the general extent of the business here supposed, that a baily may be profitably employed; and that a great number of hands may be kept constantly at work the year round, upon distinct business; which is a matter of vast importance. In a small farm, one work (as in the case of draught cattle) stops, that another may be done. Turneps want hoeing, but at the same time the harvest is going forwards, and all hands wanted for that; the former will certainly be neglected. Perhaps a large field wants to be clayed, chalked, or marled; during hay time and harvest, such work will be sure to stand still, whatever loss may be sustained from it. In a word,
some

some work or other, in a small business, is sure to be neglected, that other kinds may be done. The farm which I have sketched, is large enough to prevent any neglect of that sort.—Let us, in the next place, proceed to draw forth the general œconomy of this farm, from the particulars already given.

The stock of draught cattle amounts to sixteen horses and fourteen oxen: upon which I should in general add one slight remark. I have divided them into teams, for distinct business, which is necessary: but at the same time mutual exchanges must sometimes be supposed; three horses are marked for harrowing, one for rolling, and two for extras: it does not therefore follow, that these are never to be employed upon other work. Perhaps 100 acres of clover are to be sown in a critical season: in such a case, all these horses, and all the ploughing ones, may be set to harrowing; but the others will return the work in ploughing at a like pinch: the meaning of distinct teams is, that in general all this business is to be distinctly performed, but particular exceptions are not objections to the general arrangement.

The thirty head of draught cattle may be allowed (as they work in general much harder in a large than in a small farm) 24 acres of clover, and 24 of grass, for their summer's food. And perhaps 30 acres (60 tons) of sainfoin hay, and five of grass, will be requisite for the winter.—The quantity of food specified above, that remains, is therefore as follows:

100 acres of turneps.
50 ditto of cabbages.
50 ditto potatoes.
50 ditto pease.

C 4

50 ditto

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	50 ditto of carrots.
	50 ditto of lucerne.
50	ditto of sainfoin.
30	ditto for oxen.
—	20 remains.
	20 ditto of burnet.
	176 ditto of clover.

The query therefore is, what cattle should be provided for this food?

I have several reasons for preferring a variety of cattle, here, to all of one sort: a person who has such an extent of business, would choose to take more chances than one or two for success; besides the pleasure of gaining experience in many branches of husbandry at once. And as the quantity and variety of the food here stated are considerable, they will very well admit of several sorts of cattle.

Forty acres of turneps, and twenty of burnet, are sufficient, I reckon, to winter 500 sheep.

Thirty acres of carrots, and twenty of sainfoin hay, will winter fat (in warm sheds) 100 steers, of fifty stone each, exceedingly well.

Thirty acres of cabbages, and twenty of natural grass hay, will winter 150 cows.

Twenty acres of cabbages, and ten of clover hay, will winter fatten eighty steers or heifers, of forty stone; and that plentifully.

Eighty acres of clover hay (which I calculate at 240 tons) and sixty of turneps, will serve extremely well to winter *keep* 240 oxen of sixty or seventy stone.

Fifty acres of pease, fifty of potatoes, and ten of carrots, will, at a moderate computation, fatten 400 large hogs.

Ten acres of carrots will, with the assistance of a dairy of fifty cows, and the offal corn of the farm

farm yard, winter keep twenty sows, and wean all their pigs throughout the year, which I calculate in number at 200.

It is to be observed, that I take no notice of the straw : although that of the spring corn will, in the very littering the yard, afford no trifle of food to the lean cattle. But such a farm as this, with such a vast stock of cattle, requires, upon the whole, more litter than is possible to be raised upon it with good husbandry : I know, indeed, of no method of improving land more effectual than keeping great stocks of cattle, and foddering them with purchased straw or stubble : I treat in this essay particularly of proportions, and I must be allowed to add, that I have adhered to them as exactly as possible : for the straw and stubble of all the corn of this farm are sufficient for littering the cattle I have stated ; but at the same time, they would make a greater quantity into dung ; and consequently ought to have them bought for the purpose.

We must in the next place examine the summer food requisite for all this cattle.

The draught cattle require twenty-nine acres of grass.

240 oxen are winter kept, that are to be summer fatted ; for these we must allow, as they are large beasts, 480 acres. This is a large allowance, but a farmer had better provide too much food than too little.

The 500 sheep, before mentioned, must have assigned them about sixty-six acres of clover, for their summer food : this will be a good allowance, considering the richness of the manuring, which all the crops of this farm have. But to remove any objections, however trifling, it should be remembered, that the sheep may follow (every
now

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now and then) the 240 oxen; a consideration which would have justified the assigning a much greater number.

The 150 cows I suppose to be summer kept on the fifty acres of lucerne. This may appear a large allowance to those who are unacquainted with that vegetable; but I well know from experience, that lucerne, not comparatively excellent, will more than feed at the rate of three cows per acre.

Twenty acres of clover remain to be accounted for; these I assign to the summer feeding of the young hogs that have been weaned, and kept a proper time on the dairy and the carrots: as they will be very numerous, and require a provision of this sort, no food can agree better with them than clover; and in all farms, where many are kept, it is highly requisite that a field of good clover be always preserved for them; or if not kept absolutely for them alone, at least the quantity allowed in the *general* distribution of the clover crop.

The recapitulation of the stock and land is therefore as follows:

500 sheep summer fed on sixty-six acres of clover; kept in winter on forty acres of turneps, and twenty of burnet.

240 oxen fatted in summer on 480 acres of grass land; and kept in winter on eighty acres of clover hay, and sixty of turneps.

150 cows summer fed on fifty acres of lucerne; and kept in winter on thirty acres of cabbages, and twenty of natural grass hay.

100 steers

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100 steers	winter fatted on thirty acres of carrots, and twenty of sainfoin hay.
80 steers	winter fatted on twenty acres of cabbages, and 10 of clover hay.
400 swine	fatted on fifty acres of pease, fifty of potatoes, and ten of carrots.
20 fows,	and their pigs, kept the year round (with the assistance of the dairy and farm yard corn) on ten acres of carrots, and twenty of clover.
30 draught cattle	kept on twenty four acres of clover, twenty-nine of natural grafs, and 30 of sainfoin, (besides oats, &c.)

The land, therefore, applied to the feeding and fattening of cattle is,

529 acres of natural grafs.

200 ditto of clover.

50 ditto of lucerne.

50 ditto of sainfoin.

20 ditto of burnet,

50 ditto of cabbages.

100 ditto of turneps.

50 ditto of carrots.

50 ditto of potatoes.

50 ditto of pease.

1149

250 ditto of wheat, barley, and oats.

1399 total.

The vast disproportion between these two numbers, shews how rich and clean the land must necessarily be kept. We may venture to lay it down as a maxim, that if great stocks of cattle are kept, much money will be made. Here are only 250
acres

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acres of wheat, barley, and oats; but I may venture to assert these 250 to be better than many crops of 1000 acres, where the proportion between the exhausting and ameliorating ones is not well attended to.

The cattle kept in winter are those to which a farmer should look for raising manure; these are,

240 oxen.
150 cows.
100 steers.
80 ditto.
30 draught cattle.

600

These 600 head of cattle ought, beyond all doubt, to raise, in the course of the winter, twelve loads per head of dung, such as is carried at first out of the yard, before it is rotten, or mixed with earth, &c. that is, — — — —

	7200
400 Swine fatted, at two load each,	800
20 Sows, at five loads, — —	100
	8100

Whatever farmer keeps such a stock of cattle, ought to raise this quantity of dung annually; but he will not be able to do it, unless he purchases straw, or stubble, regularly, by contract with his neighbours, that he may have a certain number of loads brought in every week throughout the whole winter. It is impossible, consistently with good husbandry, to allow, in such a sketch as this, corn land proportioned to the want of straw; because,

cause, as that is increased, so must the number of cattle, and, consequently, the disproportion will be the same, *ad infinitum*.

I allowed one team for carting the year round, and extras of other cattle, to the amount of another: a team, and two small three-wheeled carts, will carry at an average thirty loads a day, or rather half loads, as those carts do not hold above half a load; that is when the drive is not long; in other cases, larger carts are to be used, and the teams thrown together. In the whole, it is sixty small loads a day, or thirty common ones; that is, 9000 per annum, reckoning them to work three hundred days in the year; which total leaves them time, after carrying away all the farm-yard dung, to carry nine hundred loads more of marle, chalk, clay, ditch earth, &c. annually.

One circumstance, however, should here be noticed: in general, it is highly adviseable to cart a large quantity of marle, chalk, clay, or earth, into the farm yard, to fodder the cattle upon; after winter, to mix that and the dung well together, and cart the compost on to the land; the reason I have varied from that maxim in the instance before me, is the nature of the vegetables cultivated on this farm, that most require dunging; viz. cabbages and potatoes first; and secondly, turneps and carrots; and lastly, clover. I have already stated an annual manuring of 9000 loads; to this we must add 300 waggon loads of town manure; (if the farm is within five or six miles, many more; as in summer the wagon may go twice a day;) or above 900 cart ones: the total may be called 10000 loads annually. This quantity I should divide as follows:

100 acres of cabbages, and potatoes, at fifty loads an acre	—	5000
120 ditto of turneps and carrots, at thirty loads an acre	— —	3600
100 acres of clover, (the half) at four- teen loads an acre	— —	1400
Total		10000

Now this manuring is, upon the whole, so fully sufficient to keep all the farm in excellent heart, that I thought the doubling the quantity with clay, &c. needless: in farms where a much greater proportion of corn is sown, that conduct is *absolutely* necessary, because raw dung should never be laid on corn land; but these vegetables, especially cabbages and potatoes, delight in it. However, the addition of another team for carting, which is but a trifle in such a farm as this, will at once remove the objection, if it is thought a good one, by enabling the farmer to carry 9000 loads of earth, &c. annually to the farm yard.

Having thus stated the *land*, *cattle*, and *manuring*, we must, in the next place, enquire into the labour that will be necessary: an article that requires the proper proportioning, if possible, more than the teams. It is of the highest consequence, that there are men for every work, at all seasons of the year; to have the teams idle for want of men, is the way to ruin any farmer.

Six ploughs, two horse, and four ox ones, require regularly six men, and four boys to drive the oxen. These should all be servants in the house.

One harrowing team requires one man; a servant also.—It is common for farmers to set boys to harrowing: but if their harrows are such as they

they ought to be, the work will be more than they are able to perform, besides the danger of wounding the horses with the teeth; of which the person should be more careful than a boy can be supposed to be.

One boy will be wanted always in readiness for rolling; a servant likewise.

Two men (servants) for the horse hoeing teams; sometimes they will work with single horses; sometimes with two; as they will have their share of the extra ones, and the rolling horse.

One man and a stout lad should be allotted to the waggon team, for bringing manure, &c. these should also be servants; and two men to the miscellaneous ox team.

One man must always be ready to drive the ox carting team; and when it is doubled, another, or a stout lad, will be wanting. The small three-wheeled tumbrils are so extremely handy, that a man and a lad will manage two sets very well. These also must be servants.

One man (servant) must be assigned to the extra horses to work with them, at whatever they are set about.

The 500 sheep will require one man, who should be called the shepherd: but as the sheep are all kept in inclosures, he will have much leisure for other work; he may particularly assist with the cows.

The 240 oxen, kept the year round, must have one servant allotted to see to them; in winter he will want assistance, and there will be enough to spare in other hands, without a direct increase.

The 180 steers, that are winter fatted, must be attended by five men, and as many boys. These may be labourers or servants, but the latter are preferable for all business that concerns cattle.

—It

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—It should be remarked, that I suppose their conveniencies complete; otherwise, three times as many hands must be kept. Nor should it be taken for granted, that because a given number of men and boys can manage a certain number of any sort of cattle, that therefore boys alone can do for a much fewer, however proportioned the quantity may be; boys are never to be trusted at any work whatever, but in company with men, who will make them work for their own sakes.

400 fatting swine, and twenty sows, with the pigs and young hogs, may be easily managed, through the winter, by three men and two boys: but this depends totally upon the hog-houses, flies, &c. being excellently well contrived for convenience. I have seen such as would require twenty men to manage this number of swine. In summer, one man would be sufficient.

The 150 cows are divided, fifty for the dairy, and 100 for suckling. These will require three men and three boys. And the dairy, one head dairy woman that can be trusted, and two others, with assistance of the boys, &c. at milking.

Thus far the servants, labourers, and boys, are,

S. L. B.

6	0	4	For the ploughs.
1	0	0	Harrowing team.
0	0	1	Rolling.
2	0	0	Horse hoeing.
1	0	1	Road team.
2	0	0	Ox team for sundry carting.
1	0	0	ditto carting dung, &c.
1	0	0	The extra team.
0	1	0	The shepherd.

14 1 6 Carried over.

S. L. B.

S.	L.	B.	
14	1	6	Brought over.
1	0	0	The 240 oxen.
0	5	5	The 180 steers.
1	2	2	The swine.
0	3	3	The cows.

16 11 16

In some situations, it would be adviseable to have more of them labourers; but in others, it is the most beneficial practice, to employ nothing but servants: variations of this kind must exist in every county of the kingdom.

A certain portion of hands are assigned to each business; but at times some will want more; while the cows are milking and suckling, the cowherd must take some of the tillage boys, for as the care of the draught cattle is not left to them, they should be employed in the morning, while the horses and oxen have their breakfast and are harnessed, about other cattle; and again, during all the afternoons, the same.

In the teams, four horses are to be allotted to a man, (without any assistance) for feeding, cleaning, &c. &c. &c. The sixteen horses must therefore be allowed four men, and the fourteen oxen will be very easily managed by one man and a stout lad. But the man who drives the road team must be allowed his boy, in consideration of his waggon being unloaded every day. All the teams therefore require five men and two boys. But in the above table there are fourteen men and six boys employed by them; deducting therefore the necessary number, there remains nine men and four boys; and these are at hand, and at leisure for any kind of work, both of mornings and after-

D

noons,

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noons, either in assisting the men who have the care of the other cattle, or in any other work that is wanting.

It remains to proportion the rest of the labourers that must be employed upon the crops above mentioned. All the plowing, harrowing, horse-hoeing, carting of every kind, (the drivers) and all the cattle are provided for; the best way of examining the rest, will be to calculate the total sum it will amount to, and then divide the sum into labourers annual earnings; and this I shall calculate in as few words as possible.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Sowing 150 acres of wheat, 150 of spring corn, 100 of turneps, and 100 of clover, at 3 <i>d.</i>	6	5	0
Water-furrowing 300 acres, at 6 <i>d.</i>	7	10	0
Reaping 150 acres of wheat, at 5 <i>s.</i>	37	10	0
Mowing 150 acres of spring corn, at 1 <i>s.</i> 6 <i>d.</i>	11	5	0
Thrashing 300 acres of corn, five quarters per acre, 1500 quarters, at 1 <i>s.</i> 6 <i>d.</i> on an average,	112	10	0
Hand-hoeing 100 acres of turneps twice, at 7 <i>s.</i>	35	0	0
Drawing and throwing into carts 60 acres, at 3 <i>s.</i>	9	0	0
Planting fifty acres of cabbages, at 5 <i>s.</i>	12	10	0
Hand-hoeing ditto twice, at 6 <i>s.</i>	15	0	0
Cutting ditto, and throwing them into carts, at 2 <i>s.</i> 6 <i>d.</i>	6	5	0
Carried over	252	15	0

Brought

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	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	252	15	0
Dibbling fifty acres of potatoes, at 5 <i>s.</i> (each man to be allowed a boy, who are allowed to slice them) - - -	12	10	0
Hand-hoeing ditto three times, at 12 <i>s.</i> - - - - -	30	0	0
<i>N. B.</i> They are plowed up; the potatoes picked up by boys.			
Sowing fifty acres of carrots - - -	2	10	0
Hand-hoeing them, at 2 <i>l.</i> - - -	100	0	0
<i>N. B.</i> In a farm that is not kept so clean from weeds as this, it will cost 3 <i>l.</i> but that circum- stance should not be forgot.			
Digging them up, and throwing them into carts, at 8 <i>s.</i> - - - -	20	0	0
Hand-hoeing fifty acres of lucerne three times, at 10 <i>s.</i> - - -	25	0	0
Mowing ditto five times, raking to- gether, and loading into waggons at 12 <i>s.</i> - - - - -	30	0	0
Mowing, making, and cocking, fifty acres of sainfoin, at 4 <i>s.</i> - - -	10	0	0
Ditto, ninety ditto of clover hay twice, at 4 <i>s.</i> - - - - -	36	0	0
Ditto, twenty-five ditto of natural grafs, at 5 <i>s.</i> - - - - -	6	5	0
<i>N. B.</i> The most eligible method in so large a farm of having a good stock of hay beforehand, is, to go through the first year with a moderate stock of cat- tle, by which means several large stacks will remain always in hand.			

Carried over 525 0 0
D 2 Brought

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	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	525	0	0
Filling and spreading 8100 loads of dung, forty bushels each, at 2 <i>s.</i> 6 <i>d.</i> a score - -	50	12	0
<i>N. B.</i> The price of small carts proportioned.			
Filling and spreading 900 loads of ditch earth, &c. thirty bushels each, at 2½ <i>d.</i> - -	9	7	6
Ditching and hedging 500 perch, at 1 <i>s.</i> - - - -	25	0	0
Total	609	19	6

Suppose they earn (as it is mostly piece-work) 1*s.* 3*d.* a day the year round, that is, 19*l.* 11*s.* 3*d.* per annum; but we will call it 20*l.* the above total is, at that rate, equal to thirty labourers; which, all things considered, is the number I am inclined to assign, in addition to those before minuted.

I allow nothing for extraordinaries, nor take any notice of small articles not inserted, because, in the first account of labour, seven men (besides boys) are minuted for winter employment alone; consequently, all their time in summer is to be disposed of, and this addition will be fully sufficient to answer all unspecified articles, and to allow for extra's.

I should also remark, that upon casting the above labour up distinctly in summer and winter work, I find the latter amounts to 27*l.* 9*s.* 6*d.* which (considering the rate of earnings at that time of the year) is more than half; consequently the farmer is secure of men at all times of the year, a point of very great importance. Whoever finds
winter

winter work regularly, is sure of his men in summer; for it is highly the interest of the labourer to work in summer (if demanded) where, in consequence of such work, he is sure of winter employment. Those who are known to hire men in summer, and pay them off upon winter coming, must always expect to pay many degrees dearer, upon the long-run, than others who find regular employment the year through.

The general state of *land, cattle, and labour*, will appear in the following sketch.

250 acres of wheat, barley, and oats.

50 ——— of pease.

250 ——— of turneps, cabbages, carrots, and potatoes.

320 ——— of clover, lucerne, sainfoin and burnet.

529 ——— of grass land.

1399 Total acres.

500 sheep.

420 beasts, fatted.

150 cows.

400 hogs, fatted,

20 sows.

30 draught cattle.

1 bailey.

16 men servants.

41 labourers.

16 boys.

3 dairy maids.

Upon this general scheme, I should observe that every part of such a farm is of consequence enough to merit a distinct attention. In the tillage and manuring, six ploughs may be at work, several pairs of harrows, a roller, a waggon upon the road bringing manures, a team carting manure at home; another, employed in any sundry kind of waggon or cart work that is wanted. Two ploughs, horse-hoeing crops in rows. And while all these are at work, above fifty other hands employed besides on various business: thus all may work in their distinct apartments, and yet every business go on briskly and well.

On the contrary, in case of very critical seasons, fifteen ploughs may at once be set to work, and plow for instance the 150 acres of spring corn land in ten days time; and in three days more sow and harrow the whole (clover with it) three times over. Thus the great pinch of a sowing is over in a fortnight, which, with common management, and common farms, lasts six or eight weeks. The difference of this is prodigious. We sometimes see a fortnight of fine dry weather the end of February, or the beginning of March; and afterwards so wet, that the spring sowing is not over in general till the first or second week in May.—To catch the dry and early time, is, in such a case, to be estimated at from one to two quarters per acre; and oftentimes at much more.

On the other hand, thirty draught cattle are at once to be set to carry the dung out of the farm, and above 1300 loads carried in three days.

The same vigorous dispatch of business holds throughout all the work of such a farm. And in every article concerning labour it is the same. All the teams are constantly employed; and yet no work, that wants men alone, stops.

In respect of cattle, each sort are numerous enough to be well attended; the contrary of which is remarkably the case in most small farms. When there are only a few sheep, a few cows, a few hogs, and an ox or two, the farmer cannot dream of setting men to attend each: we even never see *one* man strictly confined to take good care of all. One or two boys have an hundred things to do, without being regularly overlooked in one. Labourers or servants, by way of broken jobs, and at odd times, have the charge of all the cattle of a farm; which are all sure to suffer, if any business of tillage, threshing corn in a hurry, carrying it out, &c. &c. intervenes. The profit which arises merely from a different conduct, ought in reason to be estimated very high.

The sheep have in this farm a shepherd to attend them at all seasons, and at all hours. The beasts that are fatted throughout the year, have men for the mere service of attending them. Those which are fatted in winter alone, do not suffer from the others being taken such good care of, having men, &c. distinctly appointed to them. Nor does this arrangement in the least injure the cows, who are considered in the same manner, and have separate men. At the same time that these cattle are thus attended, other servants have the swine constantly in charge. Those which are fattening, are regularly fed and littered: nor are the sows, pigs, and lean hogs, therefore neglected; hands being on their account likewise allowed.

Such a number of objects, and so many men employed, render it very well worth the expence to pay a bailey; by which means an overseeing eye is constantly examining how every thing goes on; and a farmer can depend, whether absent or present, on every person's doing his duty.

The advantages resulting from such an arrangement are prodigious; equally so in *tillage*, *labour*, and *cattle*; and, as the result of all, in the aggregate of PROFIT.

This is what I mean by the *proportions* of a farm: which evidently require a certain extent of business to be properly attended to: it is very difficult to assert, which sized farm is, minutely speaking, the most profitable: but we may, from the preceding sketch, venture to pronounce that these proportions are requisite for considerable profit in any farm. They may be reduced to a less scale than I have instanced, and they may be extended to a much larger one, but there is a *ne plus ultra* on both sides, beyond, or short of which, the profit will not *proportionably* hold.

Respecting cattle in the reduction of this scale, I think every sort ought to have *one* man *absolutely* appointed to them: as many sheep must, therefore, be kept as will pay a shepherd: as many hogs as will make a hogherd answer: as many cows as will require a cowherd: and the fatting beasts a respective attendant: dependance may be had on other men's odd time for *assistance* in all these, but in none of them *solely*. Nor is there much conduct in giving one man several sorts of cattle to attend; for one person, in that manner, can do very little well, much less than commonly imagined: a quick change, and that several times a day, from one employment to another, suits farming people less than any in the world; a plain regular business of the same kind, is the only way of being well served by them. The misfortune of a small farm, is the allowance of nothing regular.—Confusion, and loss of time, are the only sure concomitants of such.

ESSAY II.

Of the best method of conducting a farm that consists all of arable land.

TO have introduced the few remarks I have to make on this head, under another, would have occasioned a confusion, which ought more to be avoided in works that treat of agriculture, than perhaps in any other.

Farms that consist entirely of arable land, are conducted in some few parts of the kingdom in a very judicious manner; but such conduct not being general, nor generally understood, a few words in explanation of it may not be useless.

Food for cattle is so absolutely necessary in every farm, that no farmer is found without it: the great point in debate is, which is the best way of securing it under difficult circumstances?

There is no article, in the whole range of husbandry, of more consequence, than the proper division of a farm into the two grand parts of grass and arable: the common mischief is having too little of the former: the manner in which most farmers (especially little ones) remedy this evil, is what every person should exert himself to oppose and change.

The

The obvious remedy is to lay down, in a masterly manner, a sufficient quantity of the arable land to grafs, which is, at once, removing the evil: but when we consider any points in the business of common farmers, it is necessary to span a greater latitude, and aim at those circumstances (however contracted in themselves) which operate the most powerfully among them.

Many farmers cannot afford to do what they know to be right; and others who can afford it, are so fearful of the expences, that they let slip the best opportunities. Many of them, that really want grafs land in a great degree, shew, in their conduct, that they are sensible of the evil, but either know not how, or will not remedy it: thus we see them depending upon clover for feeding their horses (the only cattle they concern themselves about), and yet rest their dependance on *every* season to gain a crop; and will not give that crop the chance of a fallow. Others lay a field or two down to grafs, but do it in such a manner, that the constant loss they sustain, is a burden upon them as long as they remain in their farms.

In the first case they take two, three, four, or, perhaps, more corn crops, and when they find the soil will yield no more, they throw in the clover seed and take the chance of a crop: if they are so lucky as to succeed in a certain degree (beyond which mediocrity no season can carry them), they plow it up again the first year for harrowing in wheat on one earth; a compendious mode of husbandry which well suits their pockets; and thus they every year run the chance of being defeated in their resource.—In the other method of remedying the evil, viz. of laying down a field to grafs, they are sure first to take as many crops of corn, as the land can possibly yield, even till the produce is little more than straw: after this,
many

many of them let it alone to graze of itself, never sowing any grass seeds, nor troubling themselves further about it: others, whose industry may be somewhat greater, will throw in some common clover and rye-grass, as they are cheap seeds, and leave it to gain a turf in that manner.

There is no occasion to expatiate on such methods, which carry in their face the stamp of their own absurdity. So much was necessary to shew, that what I at present treat of, *is an evil*, and *requires a remedy*. The reader must judge how far the following propositions are likely to answer the purpose. One previous remark is, however, necessary; there *may* be reasons, and not *bad* ones, for avoiding the obvious method of laying a part of the farm down to natural grass in a sufficient manner; we must therefore suppose, for the sake of the argument, that such reasons are *good*.

The course of crops most to be recommended to a farm in this situation, provided the soil is light enough for turneps, is this;

- 1 Turneps.
- 2 Barley.
- 3 Clover for two years.
- 4 Wheat.

A farm in this management is thrown into fifths; two of which are always in clover, half one year, and half two years old.

The advantages of this course are many, and must be obvious. A large portion is always grass, which answers the grand aim of providing food for the necessary cattle. Before one year's clover is plowed up for wheat, the success of the new crop is known; a point of vast importance with farmers, who either cannot, or will not keep their land in
such

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such excellent heart, as always to be sure of a crop; so that in case of such an unfavourable season, as to have their clover fail, there remains no such danger of the cattle starving, as the last crop, instead of being plowed up for wheat, may remain, to answer the demand of the new year; and, at the same time, the usual quantity of wheat be sown; which could not be the case if only a fourth of the farm was in clover.

In the provision for such cattle, as clover will keep, this method effectually answers the purpose of natural grass; but clover will not do for all uses: beasts cannot be fattened upon it; nor must cows be fed on it, whose butter is made into pounds to be sold *fresh*; but for a dairy that puts down the butter salt in firkins, or for suckling the cows, nothing does better. Sheep are kept upon it, and fattened, even to greater profit than on natural grass. Hogs affect it uncommonly; and no food agrees better with horses. At the same time that the vegetable answers the purpose of feeding cattle so well, it is remarkably profitable in another respect, that of preparing the land excellently for wheat, which is sown after it on a single earth, and in that cheap method, yields crops equal to those the best fallowed for.

There must, however, be many of my readers, who have remarked the culture of clover among common farmers, (and many of them such as are generally esteemed good ones) without seeing such very beneficial effects attend it, as I have ventured to sketch. But, without recurring to such instances of execrable husbandry as I set out with quoting, it must be observed that clover, like most other vegetables, requires good husbandry, to yield good crops; and that not merely relative to the crop with which it is sown, but all
that

that compose the *course* in which it is introduced. In a word, it requires a general good management.

Suppose the turneps, which I state as the first crop in the proposed system, are managed after the manner of many whole counties, that is not hoed at all, but left at their utmost thickness, and full of weeds, as such crops mostly are; this management does not affect only the turnep crop, but every one that follow: for the crop of turneps, which is the first in the course, if it is badly managed, will much prejudice even the wheat one, which is the last. They leave the land full of weeds for the barley; and as such gentry are always on the increase, like other bad company, when once they have got a head, the barley that succeeds is sure to be full of them: with that clover is sown, and must infallibly be pestered with them; since in all probability the land had as many seeds of weeds in it as of clover, consequently much of the latter must be destroyed, and all impoverished, for no soil can carry twenty crops at once. After the clover comes the wheat, which must infallibly suffer from the poverty of the clover crop. All who have the least experience of this husbandry, must be sensible that the wheat is ever the best after the best crops of clover: for the roots of the grass are the manure for the succeeding crop, and operate in loosening and mellowing the soil, as much, perhaps, as the utmost efforts of tillage can reach; but I never heard that the roots of weeds were attended with either of these effects: not to notice the vast difference between succeeding a vegetable that maintains a great many cattle, and others that yield food for none.—In this manner, every crop is successively injured by the weeds, until the last is almost destroyed by

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by them: and then the circle goes round again upon the same principles, in so much, that every course increases these grand enemies, until at last the ground, however good it may naturally be, becomes quite exhausted, and will yield nothing but trumpery.—In this management, I think it is pretty clear, that the clover husbandry may be woefully unsuccessful, and yet in itself be no wise wanting in merit.

But supposing the turneps are well hoed, and managed in all respects upon the best principles, still the goodness of the clover crop will depend upon the intermediate conduct. Many farmers, who cultivate their turneps in the manner they ought, think they have therein done so much for the land, that it will very well carry more successive corn crops than I advise: instead of sowing their clover with the barley, they take two following ones of barley, throwing in the clover with the last; or, perhaps, two crops of barley, and then one of oats, and the clover with that: all the consequences of which conduct are as bad as can well be conceived. In the first place, the land is filled with weeds, which is the infallible event (in any management however otherwise good) of several successive crops of corn; the clover is necessarily much damaged; and the succeeding wheat very poor. Secondly, the farm is divided into a greater number of parts, more land sown with corn, and less with food for cattle: all which considerations are of the utmost importance.

I must, lastly, mention another mode of conducting such farms as these; which is to sow no more clover than just to maintain the horses; to omit turneps altogether, and to gain from the land as many crops of corn as it will possibly yield,
and

and then to give what such farmers call, a fallow to it.

In other words, every means of exhausting the soil are taken, but none of replenishing it; nothing but corn raised; and no cattle maintained, and, consequently, no manure raised. This management is execrable, and yet surprizingly common among little farmers. I know not to what to attribute it, but the want of money.

Turneps and clover are both crops that require much cattle to consume them, and, consequently, large sums of money generally in hand: and this can never be found, while they over-trade themselves to such a degree, as is almost universal at present; scarcely a man amongst them, that ought to have more than half the land he possesses. This want of money is surprizingly evident among them, in the want of cattle: many of them have as much as their food will serve, but that is not the point; it is the providing a proper quantity of food; which provision may almost be said to form the basis of all good husbandry.

In the course of crops, of which I am at present treating, viz. fifths, two of clover, and one of turneps, the sum of money requisite for cattle is no trifle. Suppose the farm so small as 100 acres: forty acres will be clover, and twenty turneps. Suppose four horses and sixteen cows are kept as regular stock, these may be allowed thirty acres of clover for their summer food, and they will spare enough to run a few hogs or sheep after them, the former best; ten acres mown twice for hay, will serve them in the winter (if the horses are not hard worked) with the assistance of the straw and five acres, suppose of turneps; there remains, consequently, fifteen acres of turneps, and these will
winter

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winter fatten twenty-five heifers or steers, of five pounds value lean.

Here, therefore, besides horses and swine, is a stock of cattle, to the amount of near 200 *l.* which is full four, or perhaps five, times as much as ever found on such a farm. But how comes this? say some. The answer is extremely easy; a man who possesses the sum requisite for *thus* managing 100 acres of land, will scorn such a little farm, and hire twice, perhaps thrice, as many acres: and this false ambition is so universal among them, that scarce an instance (at least among small and middling sized farms) to the contrary is to be met with.

The gaining of good crops of corn must for ever depend on possessing plenty of manure, and the course of crops, which I here sketch, if well stocked with cattle, will raise considerable quantities; and as the ameliorating crops, viz. clover and turneps, amount to sixty acres, and the exhausting ones to only forty, that favourable proportion is another capital advantage to the corn crop.

Besides the dividing a farm in this manner, I have seen another method of cultivating arable ones, which should not be here omitted. The farmer provides just clover enough for his horses, and for one or two cows, the rest is all kept in corn, for several successive crops, a part summer fallowed every year: and to keep his land in heart, he has more horses than are wanted in tillage, so that a team is employed most part of the year in bringing dung, coal ashes, mortar rubbish, &c. &c. &c. from the nearest town, to manure his fields. In the course of crops, no regard is paid to any rules, but such lands sown as are pretty full of manure, and not very weedy—the worst
piece

piece or two, according to the size of the farm, fallowed every year.

The manuring principle of this conduct is excellent: but one remark must be palpable to every one, which is, that he expends so much money on the farm, that he might certainly as well lay a portion of it down to grass—but then again comes money. Buying manure in this manner takes much money, but it takes it gradually, in small sums at a time; whereas, to lay down a proper quantity of land to grass, and stock it sufficiently with cattle, requires a large sum of money at once: and this distinction must ever be made in all points that concern the general management of common farmers.—There are many, indeed, who would not lay down their land, were they ever so rich, and that from an habitual liking to the plough, which they think the only profitable part of husbandry.

Supplying the place of cattle with purchased manure, is, however, no bad succedaneum, and certainly there are many farmers who grow rich by the practice: but still they would find a greater benefit resulting from it, if they were not to crop their land so often, in consequence of a manuring. This is a fact much worthy of their consideration.

The reader, doubtless, remarks that I say nothing of perennial artificial grasses, such as lucerne, sainfoin, &c. but the evil is much easier removed, by laying down a part of the farm to natural grass, and I began with supposing (as we often see is the case) that, for some reason or other, the farmer would not submit to an expence, the benefit of which would remain when he left his farm. Whereas, in the remedies I offer of supplying the want of clover, the advantage is all the farmer's; whatever expence (in moderation) is be-

stowed on the clover, will be repaid with interest, by the succeeding wheat.

These principles, it is true, are very contracted; but it is necessary, when we address common farmers, or even write concerning their practice, not to forget their prejudices and contractions. To suppose them what they ought to be, and always urge them accordingly, would, at last, be nothing more, to use Swift's expression, than hewing blocks with a razor.

ESSAY



E S S A Y I I I.

*Of the best method of conducting a farm that consists
all of grass land.*

A FARM that contains nothing but grass, appears, at first sight, to admit only of the most plain and simple conduct, and to exclude variety; but a very slight examination will shew that such an idea is a mistaken one, and that there is much difference in the profit, by different modes of conduct.

I should premise, that I suppose the grass sufficiently good for any purpose, and that it will fat a large ox.

Now the questions at once are—Whether a farmer should apply it to the feeding cows—or to the fattening of cattle, or sheep? Whether he should keep his stock through the winter, as well as through the summer?—And whether he should mow the whole for hay? Let us spend a few words in considering each of these methods.

If cows are his stock, whether for the dairy or for suckling, he must provide winter as well as summer food. I have known some of these farms, and the common method is to feed them all winter

long with hay, and the remains of the last year's grafs, which they keep very late for that purpose; and this conduct is sometimes profitable. Of some grafs, it takes three acres to keep a cow the year round; and of some, two and a half is sufficient. There are many pastures so very rich, that it requires no more than one and a half, or two;—but in all enquiries of this sort, we should reason upon the medium. Let us suppose two and a half the quantity: that is, on some grafs, an acre for her summer food, and the hay and after feed of an acre and half for her winter support;—or, in other fields, it may be an acre and half for the first, and an acre for the latter. These are variations which must arise from the various nature of pasture, some feed better, others are best for hay.

From this little sketch it appears at once, that grafs land, thus applied, is by no means free from expences; a large portion of it is to be made into hay every year; that hay must be carted and stacked; nor is this the only labour requisite, the cows must be constantly attended both in summer and winter; regularly brought up and drove out; and in winter much care taken of them: if they are used for the dairy, the milking requires several hands for no great number; and if they are suckled, that must be attentively performed by men. Then again, the dairy must have maids to manage it; the wear and tear of all the implements is something; firing is no inconsiderable article, which also requires carting; and lastly, the sale of the products require more carting, which, and the carrying hay, will render a certain number of draught cattle (though a small one) requisite: nor is it different with suckling, as the calves must probably be bought and sold at such a distance, at least, as will require a cart.

These

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These circumstances are all evident enough, and will admit something towards a calculation of their amount: but no person, who is practically acquainted with husbandry, will venture calculations under the idea of perfect accuracy, which is impossible in any thing but mere facts: these I am by no means deficient in, as I know by experience every one of these articles minutely; but that experience concerns particular lands, whereas, in an essay of this nature, it is only a general experience—the average, if I may so express myself, of many particular and various experiments, that is of use. The nearer one's suppositions come to a general average, of the more use will they be. For this reason, however, individuals should not be too severe in criticising *general* calculations from *particular* practice: my own experience tells me, that method of judging would be very unfair.

I calculate the expence of a dairy, in the above-mentioned circumstances, to be as follows:

Suppose a dairy-maid and a boy to fifteen cows.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	
Wages and board of the maid	13	0	0	
Ditto of the boy	10	0	0	
Firing for 15 cows (the carting and horses included)	4	0	0	
Wear and tear of the dairy utensils, &c. salt, &c. - -	1	16	0	
Labour and carting, &c. the butter and cheese - - -	1	4	0	
	30	0	0	or
Per cow - - -				<i>l. s. d.</i>
	E 3			2 0 0
				Brought

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	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	2	0	0
Mowing, making, carting, and stacking, (including the horses, &c.) of one and one quarter * acre of hay, at 10 <i>s.</i>	0	12	6
Total	<u>£ 2</u>	<u>12</u>	<u>6</u>

The product I calculate, swine in- cluded, to be per cow	-	-	7	0	0
Deduct expences	-	-	2	12	6
			<u>£ 4</u>	<u>7</u>	<u>6</u>

Which remainder is the product of three acres of grafs; but two other deductions remain to be made, which are the fencing, and the carrying out and spreading the manure, which arises in the winter.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>l.</i>	<i>s.</i>	<i>d.</i>
Product	-	-	-	4	7	6
Fencing, 1 <i>s.</i> per acre	0	3	0			
Labour, &c. in double carting, turning, &c. and horses, at 1 <i>s.</i> per cow †	0	1	0			
				0	4	0
Product of three acres, all expences (rent and town charges except- ed) paid				<u>£ 4</u>	<u>3</u>	<u>6</u>

* I take the medium of the two former suppositions.

† The quantity without straw is very small.

This

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This is 1*l.* 7*s.* 10*d.* per acre. Which is very trifling; and yet upon revision of every article, I do not see wherein I have over-rated the expences; nor do I think 7*l.* produce below the medium. Some profit may, however, remain, and as it is not hazardous, may give a farmer a decent income from a large number of cows. One thing is however observable, there are a great number of these farms in different parts of the kingdom, but it is very seldom one finds them managed in this manner, which gives some reason to suppose the real event not unlike the result of this calculation.

In suckling, I should suppose the account would be nearly as follows.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
One man and a boy to thirty cows, including the labour of the ma- nure and the fencing, the man's board and wages	20	0	0
The boy	10	0	0
	<u>£ 30</u>	<u>0</u>	<u>0</u>
Or per cow	1	0	0
Carting calves, exclusive of labour, 1 <i>l.</i> 17 <i>s.</i> 6 <i>d.</i> or per cow	0	1	3
Mowing, making, &c. &c. of hay, as before	0	12	6
Total	<u>£ 1</u>	<u>13</u>	<u>9</u>
The product of a cow, by suckling, I calculate at	6	0	0
Expences	<u>1</u>	<u>13</u>	<u>9</u>

E 4

Product

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	l.	s.	d.
Product of three acres of grafs -	4	6	3
Which is per acre - -	£ 1	8	9

This is somewhat beyond the dairy article, but not enough to found different conclusions on. It appears to me that both methods are unequal to the end, which every man, who farms at all, ought to have in view, if any thing concerning profit is his aim. If a farm be situated very near a great city or town, butter and milk, and cream, will sell at an high rate; and within the reach of Smithfield-market, suckling is peculiarly profitable; but such instances are out of the common course, and therefore must not be taken into the account.

Let us, in the next place, consider the application of a grafs farm to the fattening of cattle; and, first, of oxen or heifers.—According to the preceding state of a cow consuming the product of three acres of land, we must suppose, in proportion, an acre to fat a beast of forty stone, and this in the summer, without having any thing to do with winter feeding. All the expence of this management, upon the preceding plan, is the shilling per acre, for repairing the fences.

Now the profit upon summer fattening such a beast I calculate to be, upon an average, something better than 3*l*. if we suppose that sum exclusive of the fences, we shall not be far from the mark.

This management at once appears vastly superior to that before sketched, of cows; being thrice as beneficial. Small variations there certainly may be, and I may have mistook the particular averages of every article relative to cows: but that I have erred

erred so far, as not to leave a vast superiority on the side of fatting, is impossible. I should again remark, that the common practice of grass farms again confirms my conclusion, for where one is applied to the keeping cows, an hundred are used for grazing.

In respect to the stocking such a farm with sheep, the point depends on the proportion between a beast of forty stone and a sheep; I reckon it to be five to one; that is, an acre of this land will fat five times as many sheep as such beasts. I calculate, the difference between buying a sheep in the spring to fat, and selling him in autumn, is about 10s. upon an average, the product per acre is, therefore, 2*l.* 10s. but then there is the wool, which must be reckoned at 1*l.* 6s. or 2s. per head, that is, 10s. per acre, or 3*l.* in the whole; which is (the fencing excepted) just the same as the beasts.

—I apprehend, however, that the average profit, in the long run, will be better from the latter; and I should prefer them accordingly.

Next comes the method of fatting beasts thro' the whole year, and on this head a very few remarks will suffice. It is evident, from the preceding minutes, that the profit will be more considerable than from cows, but it is impossible that it should equal the advantage of summer fatting, for reasons evident enough from the preceding accounts. The beasts should be larger than forty stone; they must, in the spring at least, have the utmost plenty of hay, and that of the very best sort, as the progression of the victuals, given to a fatting animal, should always be from good to better: consequently, they consume a very large quantity. The most profitable fatting of all is, that which lasts through the year; but then the winter part is not on hay.

Lastly,

Lastly, I must notice the management of a grass farm by mowing the whole for hay: but this is very defective in general, however profitable it may be in the near neighbourhood of a great city. The after feed in this method can only be let out to others cattle, as it can never answer to buy cattle, merely for feeding it off. The amount of labour, of keeping draught cattle, of wear and tear, &c. &c. must all be very considerable, and deduct greatly from the produce; and if manure is not constantly brought by the return of the waggons that carry out the hay, the whole farm must soon be exhausted; nor will the quantity of manure, brought alone by such means, keep a farm in heart under this management.

Of these methods, which are those commonly practised, the buying beasts in the spring, and selling them fat out of the grass, appears to be the most advantageous: next is the fattening of sheep: the rest are all greatly inferior to these. There are some other methods, not commonly practised, of which I shall offer a few hints; but these depend on certain circumstances, which should first be explained.

If hay, straw, stubble, or turneps, can be bought at will, new methods at once open upon us: and as those commodities are to be purchased in every part of the kingdom, with which I am acquainted, and in any quantities, there will be no impropriety in supposing such a case; and then enquiring whether or not grass farms may not be applied to more profitable uses than any hitherto sketched.

First with cows. When straw is bought, the quantity of manure is very considerable, consequently the product much longer than when the improvement is but trifling: no reasoning can be clearer

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clearer than this. With the assistance of straw, in the double use of affording food and manure, I calculate an acre to keep a cow through the summer, and half another of hay for the remains of the winter; both which allowances are very ample.—The account will therefore stand as follows. First with the dairy:

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Sundry expences, as before, per cow	2	0	0
Mowing, &c. &c. half an acre of hay	0	5	0
One load and half of barley, oat, or pea straw, at 10 <i>s.</i>	0	15	0
<i>N. B.</i> However loads, or prices, may vary, the sum is certainly near the truth; as cows may in many parts of the kingdom be joisted in a straw yard, at 9 <i>d.</i> a week.			
Labour, &c. on manure, four times as much as before, or	0	4	0
	<u>£</u> 3	<u>4</u>	<u>0</u>
Product as before	7	0	0
Deduct	3	4	0
	<u>£</u> 3	<u>16</u>	<u>0</u>
Fencing, at 1 <i>s.</i>	0	1	6
	<u>£</u> 3	<u>14</u>	<u>6</u>

Which remainder is the product of one acre and a half, or 2*l.* 9*s.* 8*d.* per acre.

This is nearly double the product of the former method, which is a prodigious difference: and it appears

appears clear to me, that if the detail of an hundred acres was explained in both cases, this difference would be yet greater. It is needless to calculate the suckling, as both depend on the same facts; if one is superior in this method, the other necessarily must. I should however remark, that in suckling, if turneps are always to be purchased, they will go much farther than hay; and might very nearly be quite substituted for them, which would greatly increase the profit, even upon this account.

In respect to fattening cattle, there are many advantages in buying in autumn: beasts of all kinds are then much cheaper than in the spring, and that beyond the proportion of the wintering: add to this, their being, in all probability, in much better order, with one's own keeping, at the end of the winter, than out of the drover's hands, unless such are bought as have been well kept on the improving hand, which must necessarily be extravagantly dear, as they have passed through their first keeping, with a profit on wintering them; such as are then bought lean, are so truly lean, that much of the following season is lost in fattening them, and the profit consequently the less.

For oxen of seventy stone, the principal winter food* purchased should be turneps, if they can be had, and with them straw: if turneps are not to be procured, straw alone, which, if good, and given them with attention, will improve them; that is, they will *thrive*, which is all that is wanting. In the spring, each should have a ton of hay, which may be called two-thirds of an acre, which will bring them into good flesh, and greatly aid the whole fattening. With this management, an
acre

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acre and one-third of grafs will complete his fatting.
The account will stand thus:

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Mowing, &c. &c. two-thirds of an acre - - - - -	0	6	8
Straw - - - - -	0	15	0
One man would take care of so many, that attendance is a mere trifle; suppose however fences and ma- nure included - - - - -	0	8	0
	£	1	9 8

The profit on such a beast, by keep- ing him the year through, must be calculated at - - - - -	7	10	0
Deduct expences - - - - -	1	9	8
	£	6	0 4

Which remainder is a product per acre of 3*l.*
or, in other words, the same profit as by summer
fatting: which shews the necessity of substituting
a cheaper produce than hay, for concluding his
winter keeping. I do not calculate upon turneps,
because they are not every where to be bought.
However, as cattle are in many places to be joist-
ed on them, I shall form a variation of the cal-
culation.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Straw - - - - -	0	15	0
Four weeks at turneps - - - - -	0	10	0
Labour - - - - -	0	8	0
	£	1	13 0
	Product		

					l.	s.	d.
Product	-	-	-	-	7	10	0
Expences	-	-	-	-	1	13	0
					£	5	17 0
Which remainder is per acre	-				4	7	0

Upon the whole it appears, from these calculations, that the scale of product, according to different methods of managing, is as follows :

First. The most advantageous method, is keeping oxen through the year; partly on straw and turneps bought.

The next best is keeping cows for suckling, partly on turneps and straw bought.

The third in succession, is keeping oxen thro' the year, partly on straw bought. Also in the same rank, the summer fattening of oxen and sheep.

Fourthly. The keeping cows for a dairy partly on straw bought.

Fifth. The fattening oxen through the year, nothing bought.

Sixth. Keeping cows for suckling, nothing bought.

Seventh. Keeping cows for a dairy.

Mowing the whole, admits too many variations to know where to place it.

A few *general* remarks should be here made on these methods. One circumstance is unsuspensible of calculation, although a small allowance is made for it, which is the improvement by the manure that arises in winter feeding and fattening; this is of so much importance, that I am confident

dent the purchase of any thing respecting it, will answer greatly: for the sake of similarity, I have supposed the grass of equal value, and all good. But how many grass farms are there of a low rent, parts of which are in very poor condition? Without resorting to calculation, we may pronounce it highly necessary, in such, to raise great plenty of manure: calculations will not give us that improvement of turning *bad* land into *good*, without appearing too much to exaggerate, however far from it in reality. I know several farms, of which kind there are vast numbers in the kingdom, all grass, but three-fourths over-run with rubbish, mole-hills, ant-hills, briars, &c. with other tracts, not so covered, but poor and wet. Sometimes it is absolutely necessary to plow these, but in many cases they may be as well improved without. Let us suppose a grass farm of this nature, what is the best method of managing?

The wet lands should be drained immediately, and all the bushes, briars, &c. &c. grubbed up. A team of three-wheeled carts, drawn by oxen, should be kept constantly at work in carting. The mole and ant-hills should be sliced off in summer, and carried to the farm yard, to form a layer to fodder the cattle upon: no expence should be spared to cover them to a great depth with stubble, which is in almost every county to be bought, and nothing makes a greater plenty of manure. If turneps are to be had, a few acres should every year be purchased. I should also, on such a farm, advise that all the hay expended should be bought; it is idle to add if it can, because there is no place where hay and straw are not to be had in any quantities; for instance, in every paltry town in England. But as there should always be a certainty of food, it would be absolutely necessary always

ways to have two years hay, at least, before hand, and the advantage of a cheap year (if it is a good one for making) should not be omitted to buy, even three or four years before hand. In the same manner when straw is good and cheap, a large stack should be built. Upon these principles, I would mow none of my own farm, till I had got it into great heart, and was sure of fine crops of hay; for nothing is such unprofitable trifling as mowing poor ground. I would summer stock the whole with cows, and winter feed them, in the manner I have described: at the end of the spring, when the cattle were turned to grass, the manure in the yard should be stirred over, and well mixed, and then carted either on to a compost heap for further rotting, or at once on to the land, according to the nature and condition of the soil.

By such a system of management, a prodigious stock of cattle would always be kept, a circumstance alone sufficient to improve any farm, and a vast quantity of dung annually raised. This would presently improve all the land, and fit it for any other method of conducting it (respecting stock) that might be thought more profitable.

This method of laying in a large quantity of hay, whenever cheap, and always before hand, I should likewise remark, would render winter feeding, both of cows and fatting beasts, in the farm of the preceding scale, greatly more profitable in some situations than they there appear to be.

Some grazing farms are so very rich, that you may buy a large ox of sixty, seventy, or eighty stone (14 lb.) in spring, and sell him fat from one acre of grass in autumn. Such will admit of very little, if any, improvement by manuring, and certainly are the most advantageous farms in the world; for there are no expences, but immense profit;

profit; the product cannot fall short of eight, nine, or ten pounds per acre, which will very well afford a rent of three or four pounds.

But in general, tenants of grass farms have great reason to desire their landlords to give them leave to break up a portion of them, for the mere raising of turneps, or cabbages, or some green winter food. Even if it was no more than the mere quantity cultivated every year, without ever introducing a crop of corn, the advantage would be very great, for such plants go infinitely further than any dry food. I much question whether an acre of turneps will not go farther than five, six, or seven pounds in hay: and an acre of cabbages, far beyond that. Tenants, indeed, are sensible enough of this, and frequently petition for a little tillage land; but many landlords lay it down as a rule of conduct, never to allow of any grass to be broken up. It is absurd enough, but no less true.

The scale was inserted merely as the rough outline of an imperfect idea: every part of it, and all the preceding calculations, are liable to numerous objections: of these I am so sensible, that I could myself offer no slight list: but the subject is almost new, and it is of some consequence to stimulate other writers (though it be by means of errors alone) to search deeper than I have done; to display more numerous connections; and to compare them with a greater accuracy and penetration. This essay must be considered no more than as a hint which should lead to more important conclusions. Others may better reconcile particular facts as the foundation of general reasoning; in which case a much greater perfection might be given it.

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ESSAY IV.

Of the means of keeping, the year round, the most cattle on a given quantity of land.

GREAT stocks of cattle will appear to all, who have considered the practice of agriculture, to be of much importance, not only to the farmer, but even to the nation at large: for it is a loss to the community as well as the individual to have an acre of land feed but one cow, that is capable of maintaining two; in the same way, as that man is a useful member of society, according to Swift, who makes two blades of grass to grow, where but one grew before.

All who assert the consequence of manure (and none but visionaries can deny it) must necessarily be sensible how requisite large stocks of cattle are to obtain it: it is no uncommon thing to see whole farms improved merely by the feeding of cattle; and that without collecting and increasing the manure in a farm yard. I have already attempted to shew the importance of cattle, towards raising good crops of corn; and that an hundred arable acres will yield more wheat and barley, from being connected with a large tract of land used for raising food for cattle, than three times the quantity,

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without such advantage. Some mistaken writers have found much fault with converting arable to pasture land, and with the use of artificial grasses, as if they decreased the quantity of corn, and produced and raised the price of bread. But such a notion can arise alone from not attending to the course of country management: the quantity of land *sown* with corn, may undoubtedly be decreased; but this is wonderfully different from the quantity *produced*.

Survey a farm of 300 acres of land; one of these writers, if he found but thirty acres of grass, and 270 arable, yielding ninety acres of wheat, and ninety of barley and oats, would at once conclude, that it was a farm well calculated for national profit at least. Shew him another, in which 200 acres were grass, and 100 arable, and only thirty-three acres of wheat annually, he would determine such a farm to be prejudicial to the publick; but nothing would be farther from truth.

I have no doubt, upon an average of such farms, but the thirty-three acres would yield more than the ninety: but without supposing the difference so great, one assertion will not be thought rash, that the quantity of food for man will be vastly more considerable from the latter, than from the former farm. Wheat is the staff of life among the poor, but it is not their only food: in many countries, the quantity of cheese they eat is prodigious: butter, in cheap places, is much consumed by them, to speak nothing of meat; and if meat be not their common food, yet the greater the quantity in the markets, the more cheap joints will come within the reach of their purses. But there is another fact, which shews that every thing that is food for man, has a mutual effect on every constituent part: it is this; a great plenty of
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of one kind of food sinks the price of all the rest. Suppose beef sold at 2 *d.* a pound, do they think the neighbouring poor will eat so much bread as at present? Sell good cheese at 1 *d.* a pound, will not that have the same effect? Gaining plenty of beef and cheese, is, in fact, increasing the quantity of your wheat. And so far are grass lands from lessening the quantity of food, that they not only yield much themselves, but enable the adjoining arable to produce a vastly greater quantity than usual of corn.—It is upon these principles that I assert the quantity of *food for man* to be much greater from a farm of 300 acres, two-thirds of which are grass, than from another of which only a tenth is grass.

With respect to turneps and artificial grasses, the case is yet stronger, for they maintain more cattle, and are at the same the means of producing much more corn. In Norfolk, the course pursued in all the improved parts, is, 1. Turneps, 2. Barley, 3. Clover and rye-grass, for three, four, or five years, 4. Wheat. The quantity of corn appears in this course to be very trifling: but suppose, instead of two crops in six or seven years, they took three or four—the *acres* sown with corn, would increase greatly; but does any one suppose that the number of quarters produced, would increase in proportion? So far from it, they would not get enough to pay charges, instead of making fortunes. Turneps and clover, at the same time that they maintain great stocks of cattle, may be called the *nurseries of corn*.—Were I not afraid of the imputation of starting paradoxes, I should assert (with a certain limitation however) that *the less corn is sown, the more is produced*. Take the general practice of many large tracks of country, this would be true: it would not, therefore,

be a fair reply, that the way to have vast quantities, would be to sow none at all.

This slight disquisition was necessary, to shew that the practice I recommend, is of real utility; and not only to individuals, but to the collective body of the state: consequently the means of keeping the most cattle on a given number of acres is a subject of undoubted importance.

In this enquiry it will be necessary to throw purchased food out of the *general* question; because, however profitable that management may be, in numerous cases, it would prevent our discovering the method of arranging those crops that yield food in the most advantageous manner: indeed the supposition may sometimes be allowed for the sake of particular variations in comparison between different kinds of food: by assigning to each *the same* amount of that which is purchased, which will preserve the balance.

The most common summer food is natural grass, which is happily, from its great plenty, applicable to a prodigious variety of uses. Oxen of all kinds are fatted and fed upon it: cows it keeps for every purpose; whether butter, milk, cream, cheese, or suckling: sheep are also maintained on it for all uses; whether breeding, fattening, folding, or suckling. Nothing agrees better with horses. Its use respecting swine is but little known to the world, for no experiments have yet been published, to prove in what degree they can be kept alone upon it; which is a point of some consequence, and merits the attention of the curious in agricultural trials.

In considering the quantity of cattle grass will maintain; it is necessary to suppose the soil proper for pasture land; not light and sandy; and that it is managed in at least a common husband-like

like manner; not suffered to be poisoned with wet, and kept clear of destructive rubbish, such as thorns, briars, thistles, docks; and likewise mole and ant hills: these suppositions are absolutely fair, because such evils arise merely from bad conduct, and have nothing to do with the merit of any vegetable.—Throwing out of the question such as are very badly conducted, I take the product of grass lands in England varies between these two points—the keeping three middle sized sheep per acre; and the fatting an ox of 90 or 100 stone (14 lb.) and a large Lincolnshire sheep.

I state the product, by such an ox and sheep, per acre, as the highest, because it is the greatest return I have heard from one acre: it is a common assertion, that it is often had in the rich parts of Lincolnshire.—Lower than the keeping three flock sheep, I do not think it would be fair to descend. It is a vast variety of degrees of product that come in between these points: if one could fix a medium, it would be of great use to the present design, but it cannot be done with tolerable accuracy; the following products I take to be near the central point, but they admit a great variety among themselves.

Summer feeding a milch cow per acre, of a middling size; for instance, forty-five stone weight.

Summer feeding a cow of forty stone.

Summer feeding such a cow, and also one middling sized sheep and lamb.

Summer feeding a horse.

Summer fatting an ox of thirty-five stone.

Summer fatting an ox of thirty-five stone, and a middle sized wether.

Summer fatting an ox of forty stone.

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Summer fattening an ox of forty stone, and keeping a sheep and lamb.

Summer fattening an ox of forty-five stone.

Summer fattening an ox of forty-five stone, and keeping a sheep and lamb.

Summer fattening an ox of fifty stone.

Summer fattening an ox of fifty stone, and keeping a sheep and lamb.

Summer fattening an ox of fifty-five stone.

Summer fattening five wethers.

Summer keeping five sheep and five lambs.

Summer keeping six sheep and six lambs.

Summer keeping seven sheep and seven lambs.

Summer keeping eight sheep and eight lambs.

These points might be multiplied, and yet none possibly very far from the medium. Suppose I was asked which four of the preceding I thought nearest the truth? I should reply,

Summer feeding a milch cow of forty stone.

Summer feeding a horse.

Summer fattening an ox of thirty-five stone.

Summer keeping five sheep and five lambs.

This is, however, but an idea, and I should be rash if I built conclusions, absolutely upon such a supposition.

In respect to the product of hay, it varies from grass, which at one mowing will yield 15 l. (lower than which I think we should not descend) to that which at two affords five tons per acre.

Clover is the most common of the artificial grasses, and should therefore be next considered: but as I rejected the natural grass, which was very badly managed, it is highly requisite I should do the same here: this grass is sown by many slovenly farmers

farmers with the third, fourth, and even fifth crop of corn, but the ill success arising from such methods, is not to be laid to the account of clover in general: sowing with a second crop of corn, is by no means good husbandry, but as it is the common practice of many tracts of country, it is necessary to take it into the account.

Clover in product varies like grass; but I believe not quite so much. I take the bounds to lie between these points — Keeping three middling sized sheep per acre; and feeding two horses, and two sheep, and lambs. I have heard on good authority, of clover doing the last: which, it must be confessed, is a vast produce.

Among particulars, which are nearest the medium, I believe the following.

Summer feeding a milch cow, of about forty-five stone.

Summer feeding a milch cow, of about forty-five stone; and also two sheep and two lambs.

Summer feeding a horse.

Summer feeding a horse, and a sheep and lamb.

Summer feeding a horse, and two sheep and lambs.

Summer feeding two heifers of three years old.

Summer keeping six sheep and lambs.

Summer keeping seven sheep and seven lambs.

Summer keeping eight sheep and eight lambs.

Summer feeding nine sheep and nine lambs.

Summer feeding ten sheep and ten lambs.

Summer keeping seven hogs, half and three quarters grown.

Summer keeping eight hogs, half and three quarters grown.

Summer

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Summer keeping nine hogs, half and three quarters grown.

Summer keeping ten hogs, half and three quarters grown.

Out of these I should fix on the following, as nearer the mean point than the rest.

Summer feeding a milch cow of about forty-five stone.

Summer feeding a horse and a sheep and lamb.

Summer feeding two heifers, of three years old.

Summer keeping eight sheep and lambs.

Summer keeping eight hogs.

In mowing, I should fix the extremes, at a ton and a half; and five tons and a half, both at two mowings.

Sainfoin comes next in order; of which it is observable, no very bad crops are known, for if it succeeds, it never is in an inferior way, being either destroyed, or coming, some how or other, to nothing; or else, succeeding well, and proving a very advantageous crop. It is necessary with this, as well as the other grasses, to suppose a good husband-like treatment; that is, the soil to be dry, or at least not a weeping clay, which is the only land it is absolutely averse from: that the field be made very fine at sowing, and free from weeds; as to being rich, or in good heart, it is not so nice about that. The extremes of produce I calculate at; from keeping an heifer of three years old per acre, to keeping three cows per acre.

The intermediate steps are various; among others I should apprehend the following near the medium.

Summer

Summer feeding a milch cow of about forty-five stone, and maintaining a young heifer besides.

Summer feeding a milch cow, and maintaining two young heifers besides.

Summer keeping a horse and a heifer of three years old.

As to fattening of beasts, I know of no experiments of it; sheep, the best authors assert, should never come near sainfoin:—nor did I ever read, or hear of hogs being kept on it; not that I imagine it an improper, or unprofitable food for them, having tried it with success myself; but a few experiments of an individual should not be made the foundation of general reasoning.

In mowing, the produce varies from 15 C. to three tons and a half, both at one cutting, besides the after feed, which must be of value, proportioned to the quantities of hay. I never heard of its being mowed more than once: not because it will not yield enough to make it answer two cuttings, but there is a notion that it bleeds it; and writers who have treated on it, give the same opinion: in the experiments, however, which I tried on it, in Suffolk, under various modes of culture, I have cut it three times often, and once or twice four times, and I could never find that the crop suffered by such treatment; but, as I remarked before, the experiments of a single person, on one or two soils, should not be taken into the account, when we treat of the averages of a whole kingdom.

Lucerne must be next examined, which, like sainfoin, is in general, either very good, or so bad, as not to be suffered to remain; in the latter case
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(unless the soil is peculiarly unfavourable) it commonly fails for want of good management. But there is more difficulty in stating the produce of this vegetable, than in any of the rest, all which are much better known: it would, however, be unpardonable to omit the most valuable, perhaps, of the kind in England, because the use of it was not so general as it ought to be. Many experiments have been tried on it that will serve to guide us, though not with such general authority, as in the preceding plants.

The extremes I apprehend to be, the summer feeding a milch cow of forty-five stone, and a heifer, on one side, and summer feeding six horses on the other side.—The latter is a vast produce, but it certainly has been done.

As to fixing a medium, the following suppositions are offered, as not probably far from it.

Summer feeding two milch cows.

Summer feeding two milch cows and one three year old heifer.

Summer feeding two milch cows, and two two-year old heifers.

Summer feeding two horses, and a three year old heifer.

Summer feeding three horses.

Respecting sheep, fatting of beasts, and feeding hogs, our authority is too small to found any suppositions on: nor can we decide more of its merit in yielding hay; some writers asserting it to be good for nought, for that purpose, and others praising it extravagantly.

It would be useless to form any scale of burnet, as it is pretty well known to be of secondary merit in respect of the general maintenance of cattle, though

though extremely useful for particular purposes, such as spring feeding sheep and lambs.

Having thus reviewed the principal sorts of summer food of cattle, we must next perform the same on those vegetables that yield the chief articles of winter food: in doing which, however, some limitation is requisite, for only such must come into the account as will *alone* support cattle. Straw is a winter food, but as it is applied in a secondary manner to that use, it must not here be reckoned:—nor will it be altogether satisfactory to include any vegetable, supposed to suit only one sort of cattle; so that potatoes should not be included, though an excellent food for hogs. The articles I shall examine are, hay, turneps, carrots, and cabbages.

It would be an useless multiplication of enquiries to examine hay singly; it apparently will not bear any comparison with the other three.—Every one, the least skilled in husbandry, must be sensible, that the mean acre of any kind of hay can never come in competition with the mean acre of either of the other foods. The examination must therefore be confined to turneps, carrots, and cabbages.

There is no vegetable depends more on soil than turneps; and on culture, if possible, yet more than soil: but it is necessary to suppose these, and all the rest of the vegetables I here treat of, to be managed at least in a commonly good husband-like manner; consequently, we must take no notice of the product of those crops which are not hoed; and yet vast tracts of the kingdom are never hoed. Turneps, it is true, sell in many of those countries at an extravagant price; but we are not *therefore* to suppose the crops good: the reason of such high prices being the uncommonness of

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of the crop; for in many of those tracts they do not cultivate a tenth part of what are raised in other parts of the kingdom. In a word, we must suppose the soil, culture, &c. &c. if not precisely what they ought to be, at least, upon an average, to be in the stile of good husbandry. The variations of the crops, thus considered, are very great, rising in weight from ten to fifty tons per acre, tops and tails excluded, and the clean apple weighed alone. Of cattle maintained, the extremes, I apprehend, are,

From *keeping* seven months a steer, or heifer of forty-five stone, to *fattening* in five months four steers, of forty-five stone each.

The medium cannot be precisely fixed; but it is near the following points.

Fattening, during five months, an ox of seventy-five stone.

Keeping, seven months, three steers of forty stone.

Fattening, during five months, two steers of forty-five stone.

Fattening, during five months, one steer of forty-five stone; and keeping one steer, of forty stone, seven months.

Keeping, during seven months, two milch cows of forty-five stone.

Keeping one milch cow during seven months, and two two year old heifers.

Fattening eight wethers.

Keeping, during four months, fifteen sheep.

And of these I should apprehend the following nearer than the rest.

Fattening,

Fatting, during five months, an ox of seventy-five stone.

Fatting, during five months, one steer of forty-five stone; and keeping, seven months, a steer of forty.

Keeping one milch cow during seven months; and two two year old heifers.

Carrots are by no means so easily drawn into mediums, for the culture is but little known, though commonly practised in some parts of the kingdom: the value is, however, exceedingly great; and, rises, I apprehend, from fatting an ox of forty-five stone, to fatting six of that weight. For carrots have frequently yielded a produce of 20*l.* per acre. Perhaps the average may be fatting three such beasts; or keeping, during seven months, two milch cows, and fatting one beast of forty-five stone. Where a culture is not very common, it is difficult to fix averages.

Cabbages I am last to speak of; which, although not common as food for cattle in all parts of England, have yet, by the spirited conduct of some of the nobility and gentry in the North, arose almost at once from infancy to perfection. Cabbages have not been cultivated, even there, above a dozen years, and yet they have been carried to above thirty guineas an acre. In respect to the mean value, I reckon the extremes, from keeping two milch cows during seven months, to fatting eight steers of fifty stone. Perhaps the medium lies not far from wintering five cows, or fatting five steers of fifty stone: for we should consider, that cabbages being a transplanted crop, and requiring good treatment and rich land, they are either not cultivated at all, or to a good purpose.

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This is the last vegetable in my list of summer and winter food. Some of my readers may possibly think it superfluous: but those who reflect on the great consequence of keeping considerable stocks of cattle, and who, perhaps, possess soils that would yield beneficial crops of all these plants, will not condemn me for aiming at something of a comparison between them. Husbandry can never arrive at the perfection which all wish for, if its principles be not thoroughly understood; if the exact degree of every vegetable cultivated be not known, in relation to soil and management; and, in a word, if all the various branches of this complex art be not so thoroughly sifted and examined, as to be familiar in every combination.

The *comparative* merit of different sorts of the food of cattle, is a subject that has been strangely neglected by the writers on agriculture. One has treated of lucerne; another of potatoes; another of clover; and another of all these: but none has thought of comparing all sorts of food upon the same soil. From an accurate, though short description of a soil, it ought to be known at once what species of summer and winter food would keep or fat most cattle: but as no such knowledge is in the world, conjecture must supply its place; which, when built on some facts, is certainly of more use than leaving the subject as it was found. Thus in respect to the state of the mean produce of the preceding vegetables, had many experiments been published on them, they might have been exact; but without such authority, there is good reason to believe the mediums, at least, not far distant from the points in which I have ventured to fix them; and if not accurate, yet, as I before remarked, some knowledge is better than none; such mediums certainly being a better

better guide in considering the method of keeping most cattle, than mere incidental conjecture as I proceeded.

They are a fresh instance of what was observed in a former essay, that he who writes upon a subject, various from what has been treated by preceding authors, must spend some of his time in explanations, either in an endeavour to clear away the rubbish of false ideas, that he may afford what, to him, appear juster ones: or in preparing step by step for introducing opinions and observations, which, not being common, may be thought paradoxical. But to return.

The scale of vegetables for food shews us, that all are very useful in different ways; and some in all. The knowledge of some is much more complete than of others; but it is worthy of observation, that not one is perfectly known in an experimental manner. Even common natural grass, although the only food for cattle during so many ages, and which, at present, is to be found in vast plenty wherever land is to be found—yet even this is not fully known. In what degree can a farmer depend on grass as a food for hogs? No book ever yet published will answer that question: I have asked it of some hundreds of farmers, and never had a satisfactory reply.

In the whole list, lucerne for summer feed, and cabbages for that of winter, appear to be much the most advantageous; at least, as far as we can judge by quantity of produce. As to expences of cultivation, and clear profit, it would be endless to take them into the account. There can be no doubt but a vegetable that will maintain such a number of cattle, will pay, and well too, for culture. It is not my present purpose to enquire, how a farm of two, three, or four hundred acres

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should be conducted respecting crops for the food of cattle. Probably it would be found advantageous to have some of all these vegetables, for reasons too numerous to be inserted here. I confine myself, for the present, to the vegetables that will enable a man, on a given number of acres, to keep the most cattle: an hundred circumstances and situations may render such a conduct much more profitable than cultivating any thing else.

A farm may, therefore, be divided into two parts, one under lucerne, and the other under cabbages: and so proportioned, that the one will keep in summer the same quantity of cattle as the other in winter; and this I take, in two words, to be of all methods that which, on a given quantity of land, will keep most cattle.—And this conclusion equally respects a medium of these crops, and the utmost perfection: they are as much beyond other vegetables in the first as the last.

The method, however, of commanding great success, (and it is some question whether greater may not be attained than ever was done yet) most certainly is to give both plants all advantages of soil, manure, and culture: it is impossible that land should be too rich for either. Some crops are destroyed by rendering the soil exceedingly fertile; but this is very far from the case with lucerne and cabbages.

Supposing the medium of lucerne to be, summer feeding two milch cows, and one three-year old heifer, we may call it two cows and a half per acre, or five to two acres; and of cabbages, wintering five cows per acre. According to this proportion, the lucerne should be just double the quantity of the cabbages: ten of the latter to twenty of the former, &c. &c.

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It is not of consequence to the present enquiry, whether other land be applied to the draught cattle; or whether the proportion be varied in the lucerne to feed them in summer, and oats and hay for the winter: these circumstances must vary according to an hundred others, of which no mention is here made. The plan upon which I should conduct a farm of this exclusive sort, would be as follows:

I should first fix my team; suppose four horses, and assign a portion of land for raising oats for them, as these might follow a part of the cabbages every year, and the crop be immense. Hay I would buy, and have a good stack always beforehand, not only for my horses, but also to allow the cows just at calving a small quantity. (N. B. This, I *think*, would be right; but have no authority to *assert* that the omission would be wrong.) I would, every year, buy as much stubble, or straw as my cattle could make into manure; which would be, in proportion to the number of acres, a vast quantity, consequently the land always in great heart, and the crops uncommonly good. The horses would be used in plowing for the cabbages; in horse-hoeing them and the lucerne (for, I think, notwithstanding many instances of success in the broad-cast way, that drilling or transplanting are better methods); in carrying the food to the cattle; in carrying out the dung, &c. and their leisure time should all be employed in bringing manure from the nearest place where it could be purchased. This management would be the same, whatever use was made of the crops, either suckling, milking, or fattening. The latter should be tried with the lucerne, and I think would hardly fail; but no food whatever fats a beast better than

cabbages. Such a system, I apprehend, would be attended with very great success.

As to the particular treatment of the crops, it is foreign to the present design to enter into particular explanations on that head; but a few remarks I find difficult to omit. Lucerne is a vegetable surprisingly tender in its infant state, and as remarkably hardy when arrived at maturity; but it will at no age bear to be incommoded with weeds. Whatever be the method of cultivating it, one may venture to pronounce the crop very profitable, if kept clean from those enemies. There are many reasons for preferring the drilling, or transplanting methods to the broad-cast: the weeds are thereby absolutely at command, and want nothing but resolution and money totally to eradicate them at any time. But all the resolution and all the money in the world will not keep a broad-cast crop equally clean. The horse and hand hoeings also loosen and pulverize the soil, which is, of itself, a matter of no small consequence; and yet of greater in enabling any manure, that is spread on the surface, to take full effect of the crop. In an annual crop I have found, by experience, that the plants in the new husbandry reap, by no means, an equal benefit from manure with those in the old. But it is the very contrary with perennial ones: the surface of a field of broad-cast lucerne, when three or four years old, is almost as hard and compact as a barn floor; nor is the effect of severe harrowings a remedy half sufficient to the evil; in such a state much of the manure is useless.

But in annual crops, the manure is turned into the soil to the roots, and takes full effect—Another reason for preferring transplanting or drilling to broad-cast sowing, is the duration of the crop,
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which from divers experiments, as well as from reason, there is good foundation to believe will be five times as long; which is undoubtedly a matter of no trivial consequence: but the great point is the destruction of the weeds, for which purpose a horse and hand-hoeing are necessary to every cutting; and the men who hand-hoe the crop should stoop down and pluck out all weeds with their fingers, which their hoes cannot get at. Nor would it be wrong once a year, in drilled crops, to chop out the weeds with an instrument called an hack, and not regard cutting up some of the lucerne with them, for, where it is thick in the rows, that will be a benefit. This system of *cleaning* will, with good manuring, insure an ample cutting every month, from April to October, both inclusive; and enable it to maintain far more cattle than the medium above mentioned.

For cabbages, the land should be double plowed; that is, one plough to follow another in the same furrow, and rendered very fine: it should, at last, be thrown on to ridges (arched up) of that breadth the rows are designed to be from each other, and, after an ample manuring, the plants set, one row on the top of each ridge; they should, while growing, be horse-hoed four times, and hand-hoed thrice: with this attention, the large Scotch sort will grow to a vast size.

I have not ventured these hints by way of instructions how to cultivate these vegetables; that would require much more room than I have to spare at present; besides, the only valuable instructions are the relation of experiments. Those who give directions to raise plants, in the stile of receipts to make puddings, might as well be asleep. All I meant by this little detail, was a hint by which to judge of these crops. Such as have been

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managed upon a more saving and contracted plan, should not be thought to prove any thing against the existence of such as I have before mentioned.

Many of the vegetables inserted in the scale I offered, are extremely profitable, and highly deserving the cultivator's attention: and nothing here inserted concerning lucerne and cabbages, as their superiors, should be construed into any general disapprobation of them; nothing has been further from my thoughts. As much as I venerate lucerne, I have cultivated ten times as much clover; and yet the quantity of lucerne I have had has been no trifle. As warmly as I have expressed myself on cabbages, I have had twenty times as many turneps, notwithstanding my cultivating that uncommon vegetable on a large, as well as a small scale*.

Indeed, to a common farmer, before these new modes of culture become quite general and familiar to them, clover will prove a more profitable plant than lucerne; unless he makes his attempts with much greater spirit than is common with that set of men. Clover, as a vegetable that will succeed well under a cheap compendious practice, is invaluable: it will pay the cultivator excellently well for taking very little trouble. A farmer that has lucerne put into his hands, as better than clover, will certainly try it as he would that grass; that is,

* For several years I carried on a vast variety of experiments on all kinds of vegetables that either were commonly applied to husbandry uses, or that I conjectured might be so; and that to the number of some thousands of trials. From them I have extracted those which I think of most use, and shall lay them before the public, in hope of being thereby as useful to the community as my contracted sphere of life will allow me. Further than which I can offer nothing but good wishes.

sow it broad-cast among a crop of corn, and, very likely, after two or three other crops of corn; and, at the end of the first year, he would expect a special crop of wheat upon plowing it up and harrowing in the seed. In this culture, what crops of lucerne would he get?—Besides, the expence of stocking this grass is so great, that we may suppose it will keep many farmers (as I freely confess it did me) from cultivating it upon a very large scale. Lucerne, well managed, will carry above twenty pounds worth of cattle per acre. The stock, therefore, of 100 acres only, amounts to 2000 *l.* besides all standing and incidental charges.

But before I conclude this slight essay, I must be allowed to add a few words on the general system of keeping very large stocks of cattle. I have, in this enquiry concerning lucerne and cab-bages, spoke much of keeping cows. We have no experiments extant that prove the efficacy of the first in fattening cattle; therefore more attention should be given to its application to cows. Another circumstance, which should not be overlooked, is a collateral profit by cows, that of hogs. From the experiments which I have tried, and the observations I have made, I think there is great reason to believe the grand profit of dairies to be a secondary one; that arising from the hogs maintained by them. And this circumstance points out the propriety in dairy farms, of preparing some articles of food merely with an eye to hogs; yet this practice is scarce ever found among common farmers.

In this point a particular management is requisite; the dairy should be applied alone to that use for which it is peculiarly adapted, viz. the weaning pigs, and feeding sows that have young pigs; but nothing can be more absurd than the common

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management of feeding hogs half and three-fourths grown, and fattening large hogs upon skim milk, and butter and cheese whey.

I think it is evident enough, from this state of the case, that a different management is much wanting, that the utmost profit may be made of perhaps the most useful of all animals, and that which most affects, though almost unseen and unknown, the price of provisions. For this purpose it is very plain that the number of young pigs just weaned, and sows which have young pigs that can be maintained by a dairy, should regulate the number of hogs kept, and the food provided accordingly. In other words, that there should be such a succession in the litters, that the skim milk, or butter milk, and cheese whey, may never be applied to any use but feeding such young pigs, and sows that have pigs.

This, it must be confessed, opens a most extensive field of proportion; but, I am confident, not more extensive than profitable. Suppose, for instance, it is found by experiment that twenty cows will yield in a year food sufficient for maintaining three or four litters of pigs; now, during some months, the quantity may not be half sufficient for this, and during others, greatly more than sufficient. The means, therefore, of dividing it equally, is by assigning the given number of litters, and feeding them out of cisterns in which the milk, &c. is preserved, that there may never be a necessity of wasting it, or giving it uselessly to the other hogs in the height of the season, when the quantity is very great.

Having by this experience discovered the proportion between the litters of pigs and the number of cows, the next business is to enquire the number of pigs whose weaning is completed,—of those that
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are turned out after weaning,—of hogs half and three-fourths grown,—and, lastly, of such as annually come to be fatted, that meat of different kinds may be provided for the respective uses. We have supposed the dairy food applied to keeping when young, and to weaning them; in the next stage, I apprehend, we must use carrots and potatoes, both which roots are much affected by hogs; and I know, from experience, will even wean young pigs: consequently a sufficient provision of their crops should be made for keeping the pigs after they are weaned, till they are large enough to turn out to green food.

In respect to the latter, that which, in several parts of the kingdom, is most known as a peculiar food for hogs, is clover *, which agrees with them wonderfully well; keeping them, without any assistance of other food, from being a third part grown till they arrive at their full size; and, if they are well managed, they will be kept totally in the field (there must be water in it) and never suffered to come home till the clover season is over, that is, till the wheat seed-time; after which they should at once (if there is no fall of acorns for them) be shut up to fatting: in which last operation carrots and potatoes should be again called in, and they will fully fat them; though the most advantageous way is to complete their fatting with a few pease.

From this train of management appears the crops which should be cultivated, and the proportions of them for the collateral uses of a dairy: an object which is, beyond doubt, of great importance to agriculture; but which, I am sorry to say,

* There is no reason to think that lucerne would not be equally good for this purpose, and, perhaps, better; but the knowledge of the fact is very incomplete.

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is little known or attended to by nine-tenths of the kingdom. It is, however, much to be regretted, that a large series of experiments, in which the due proportions were preserved, are not undertaken, that all points might be experimentally known; and this, notwithstanding the expence of procuring such an undertaking, for the benefits that would certainly result to the agriculture of the whole kingdom, are undoubtedly too great to render the expence of trials an objection.

ESSAY

ESSAY V.

Considerations on the Oeconomical conduct of such gentlemen as make agriculture either their business or amusement.

PERHAPS we might, without any great impropriety, call farming the reigning taste of the present times. There is scarce a nobleman without his farm: most of the country gentlemen are farmers; and that in a much greater extent of the word, than when all the country business was left to the management of the stewards, who governed, in matters of wheat and barley, as absolutely as in covenants of leases, and the merit of tenants; for now the master oversees all the operations of his farm, dictates the management, and often delights in setting the country a staring at the novelties he introduces. The practice gives a turn to conversation, and husbandry usurps something on the territories of the stable and the kennel; an acquisition which I believe, with reasonable people, will be voted legal conquest.

But to speak in another strain: all parts of rural oeconomics are, at present, much studied, and no less practised. It is impossible but this admirable

mirable spirit, which does so much honour to the present age, must be attended with great effects. For men of education and parts cannot apply to any thing without diffusing a light around them; much more so when they give their attention to a business that hitherto has occupied few besides the most contracted and most ignorant set of people in the world. And facts, as far as they have been discovered, warrant this opinion; for, I apprehend, no one will dispute there having been more experiments, more discoveries, and more general good sense displayed, within these ten years, in the walk of agriculture, than in an hundred preceding ones. If this noble spirit continues, we shall soon see husbandry in perfection, as well understood, and built upon as just and philosophic principles, as the art of medicine.

This general pursuit hurries all kinds of people to farming. Even citizens, who breathe the smoke of London five days in the week throughout the year, are farmers the other two; but, what is more to the present purpose, many young fellows of small fortune, who have been brought up in the country, addict themselves to agriculture; numbers even desert the occupations to which they were brought up, and apply to a trade so much more pleasing and independent.

Many are the young people whose relations having left them a farm or two, (by no means to make them country gentlemen, but as a fund to raise money for prosecuting the business perhaps of a counting-house, or a shop) they are captivated at once with the idea of living in the country, *upon their own estates*, and turning over a book or two of husbandry, (they can scarce lay their hands on one but will promise them a fortune in six weeks) find nothing so easy as to make a great income by
farming

farming. So flattering a resolution is soon taken, and they commence their new profession.—Nor is this the only instance; all sorts of people, not absolutely fixed in other employments, partake of the fashion, and turn farmers. Physicians, lawyers, clergymen, soldiers, sailors, merchants. The farming tribe is now made up of all ranks, from a duke to an apprentice.

No fault is to be found with this rage for agriculture; in whatever manner it is conducted, many beneficial effects must inevitably flow from it: but what I shall aim at in this little sketch, is to offer some cool advice to those who embrace husbandry *as a trade*, without knowing any thing of its practice; who embark themselves and their fortunes in a ship which may either be perfectly sound, or equally rotten, for any thing they know of the matter: to such, a few cautions, relative to the economical parts of their new business, cannot be unimportant. In one respect the consequences *may* be exceedingly beneficial; a little prudent attention may prevent losses and ruin, which will bring discredit, however unjustly, on the business in general; a circumstance which all who love agriculture should do their utmost endeavours to prevent.

The first and grand evil to which adventurers in husbandry lay themselves open, is the want of money to conduct their farm properly. In this respect they mistake worse than common farmers, who never proportion their land to their fortune as they ought; but gentlemen should apply a much larger sum of money to it than farmers, for reasons obvious to all the world.

No human power can controul or remedy this error while persisted in; it must inevitably grow every day worse and worse, till utter ruin succeeds.

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And here I speak of the most common practice, without giving into any expences, but those usual in agriculture. But if any account is taken of experimental husbandry, or the practice of what is met with in books, all this becomes ten times stronger. As this matter is the most important of all others in the conduct of young beginners, I shall beg leave to enter a little more into the nature of the case.

The great error of common farmers, is the hiring too much land in proportion to their fortunes. We constantly, through three-fourths of their lives, see the effects of this, notwithstanding their practising the most severe œconomy, notwithstanding their constant attention to their business, and their even labouring very hard themselves. The inconvenience must, in necessity, be much greater with a person who can neither labour, practise a regular œconomy, nor give a constant attention to his business; and who, added to all this, knows nothing of the matter. If he depends on the advice and assistance of another person, that person must be paid: so that in whatever light we view the case, he is undoubtedly under a stronger necessity of having a sufficiency of money than any common farmer.

A gentleman of small fortune walks over a farm of perhaps two hundred acres of land; he sees an old waggon or two, three or four carts, some ploughs and harrows, seven or eight shabby looking horses, a cow or two, and a few ragged sheep. He goes into the house and sees the men feeding on fat pork, or bread and cheese: he views nothing that gives him any idea of expence; very possibly all he sees might be purchased for an hundred pounds: and this *apparent* want of but little money, must give him a notion that a trifling sum will

will stock such a farm. Nothing is further from his head than conceiving the prodigious expence dependant on every thing he sees. If he looks at an old rotten plough that lies in the yard, it never occurs to his mind what a train of expences that instrument, which may not be worth five shillings, draws after it. If he asks advice, it will probably be of some farmer or bailey he designs to employ: now the event is too much their interest to undeceive him, however mistaken; for his ruin cannot ensue without their being much the richer for it. These suppositions may appear somewhat far stretched; but not to those who have had experience of the lower kind of country life.

There is no doubt but a gentleman may turn farming to good account, and yet be cheated for some time by the people around him: he pays for experience; but then he gets it, and that will, with good management, afterwards pay him again; but then large sums of money are requisite for this; and in the stocking a farm, good allowances ought to be made for such unseen expences.

After the view of such a farm as I now supposed, which convinced the gentleman that a small sum of money would do for farming, we will say he hires it. From that day he will be very busy in viewing his land, in pointing out improvements, and talking the whole matter over with his assistant or adviser. Every hour (if he has the least genius) will disclose something or other that wants to be done. His men will tell him, very plausibly and sensibly too, that such a ditch should be done; that this field wants draining most terribly; that that pond would pay exceedingly well for emptying; and, in a word, an hundred things that plainly ought to be executed. This crowd of business renders him desirous to know what others have done
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in the same situation : he turns to books, a new world starts upon him at once ; all he has been advised is demonstrated to be right, and a million of things besides, he never dreamt off, proved as clearly as any axiom in Euclid. His first half year's rent is not paid before he wants money.

The truth of the matter is this : every common labourer can point out many things that should be done ; the bailey many more ; and books, ten thousand times as many as both the others put together. Now, in this immense mass of advice, the mischief (*to such a gentleman*) is, that much of it is very rational and good ; if all was absurd, the whole would probably be rejected : but the best advice upon earth cannot be executed without money. It matters not a groat that a work is demonstrated to be expedient, and even necessary, if I have not cash to execute it.

The great point, therefore, is the assigning a proper sum of money to the business ; and if a man trades upon *his all*, to take no more land than he can perfectly manage, with proper allowances for his not being experienced in the business. As to the particular sums requisite for given quantities of lands, it is impossible to sketch any thing of that sort in the bounds of an essay ; but I have treated that matter pretty largely in another work, called *The Farmer's Guide*. One hint, however, I shall give here : when the gentleman has made all enquiries and estimates, let him quadruple the amount, and he will be much nearer the truth. Every consideration that can have influence on a man thus engaging himself in agriculture, call on him to be cautious in not taking too much land. If he purposes to make his business an amusement, sure there is more pleasure in viewing a few fields in a neat and garden-like order, than in wandering
over

necessary for advancement by husbandry, as prudence. In gaining due experience it is impossible to be too prudent; whatever is doubtful, requires much caution: but when uncertainty gives way to conviction, real prudence consists in discarding caution; and having once determined a measure to be right, to execute it with spirit and celerity. A situation in which borrowing large sums of money may be the highest prudence. All men, whatever be their business, that act not upon these principles, want either *prudence* or *resolution*: the one is as necessary as the other. The want of the first, will overthrow him in the very beginning of his career; and the absence of the second, will sink him when in sight of the goal.

Another point which a person who begins farming has to consider, is, the employment of a bailey. He will find this determination a matter of some consequence, and ought to be well reflected on. Many reasons are to be offered for, and many against it. It may, in the first case, be asserted, that in every species of business the master should know more, or, at least, as much as the man, that no errors may pass in the conduct of the latter, without being seen and understood by the former. That the question does not turn on the employment or non-employment of such an excellent bailey as may easily be described, but of such an one as chance or the common course of such matters will probably discover; in which case he may be supposed bad, or indifferent, as well as good, and the master without the requisite knowledge to discover whether he is the one, or the other. That the idea common in most countries is, that of nine baileys out of ten being knaves; which notion could not become general without having some foundation in truth: nor is this any-
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wise surprising, for a servant placed in a trust which in itself abounds with the temptation of breaking it, and over-looked by a master ignorant of the business, most certainly is a situation that would, in any other trade, as well as farming, prove wonderfully fertile in *creating* knaves.

That a bailey, from the nature of his office, has so many opportunities of being unfaithful without detection, that he may, in one year, defraud his master of more money than twenty labourers or servants can cheat him of. That the expence of one proper to oversee and regulate a business is so great, that it would swallow up all the profit of a small farm; consequently can never, with propriety, be recommended but in a large business; and such no gentleman, ignorant of husbandry, should at once venture on. That a bailey having been brought up totally in the common practice, has an aversion (found among all farmers) to new practices, and could, therefore, give his master no assistance in many cases wherein he might want it; but, on the contrary, would probably thwart his measures, and occasion a want of success. For these, and many other reasons, baileys are thought in most cases useless, and in many detrimental.

On the other hand it is alledged, that a young practitioner in farming must necessarily be so much at a loss about a great variety of matters that come before him, of which he is ignorant, that if he does not keep a bailey, his whole business will infallibly suffer; his servants will impose upon him in an hundred points, and assert every thing to be the custom of the country: his labourers will do the same in all their work and prices: his cattle will be ill managed, and his crops spoiled: consequences much more fatal than the dishonesty of any bailey, be he ever such a knave. That a gentle-

man who does not employ a person of this sort must, so far from rendering his business a pleasure, submit to it as a slave. He must be absent from home no more than the lowest farmer; and he must at all seasons, hours, and weathers, attend to every motion of his people. He must ride about the country to fairs; he must frequent markets: in a word, he must let himself down to the lowest company; and if he has the least taste, or the ideas of a gentleman, suffer continual uneasiness. That, by the employment of such a person, he not only escapes all these disagreeable circumstances, but likewise learns, at the same time, the principles and the practice of his business: by the help of a bailey, well skilled in common husbandry, he will, in a few years, acquire an equal knowledge; and, consequently, have it fully in his power to oversee and controul the bailey himself, and never lay himself open, through his ignorance, to be imposed upon. That the propriety of keeping a bailey, even in an oeconomic view, is proved by the practice of most great farmers, a set of people so sharp-sighted to their interest in these matters, that they would never suffer a constant, or, indeed, any train of imposition. That all gentlemen, whether they have farmed a long or a short time, but especially beginners, find that servants and labourers will not obey them so well as a person nearer their own level in life. Gentlemen never have the work done that common farmers have; but a bailey will procure as much for his master as any farmer has, provided the master encourages this head servant, and makes it his interest to use him well. For these reasons, as well as others that might be urged, the expediency of employing baileys is asserted.

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Sir Roger's decision, *much may be said on both sides*, is here very applicable; for neither opinion should be embraced in absolute exclusion of the other. It may, therefore, be of some use to point out, in the supposed conduct of the gentleman just going to farming, such a course of management as may obviate, if not remove, the objections of both parties.

The most difficult point is the *size* of the farm; as nothing but a considerable business will pay the expence of a bailey; and there can be no doubt of the imprudence of beginning with a large farm, dependant wholly on the honesty and skill of another man. I think, for this reason, the gentleman should begin with a small farm, not under the expectation or the notion of making a shilling profit, but for the more important advantage of gaining experience enough to keep a bailey when he enters on a larger business. I am sensible there are objections to this conduct; but none in difficult points can be invented that is free from them; the only choice is that which has fewest.

In a small farm, he will not find the trouble of gaining a pretty tolerable stock of knowledge and experience, so great a drudgery as some may think; he will learn the prices of the country of all sorts; and discover the proportions between price and labour in such a manner, that he will not be much to seek, in any country,—the common management of arable lands:—he will soon gain the application of manures, as known by country farmers; and such a knowledge of cattle as will, at least, prevent his falling into gross errors. In his conversation with labourers and farmers, he should make enquiries after different methods of farming; and make memorandums of such replies as he he thinks most sensible. But a greater source than

all this is observation : let him look over his hedges, and see what his neighbours do with their land : let him walk about the country for the same purpose, and compare the practice which he *sees* with the opinions which he *bears*. It would be for his interest to be acquainted with one or two decent sensible farmers, that will not take a pleasure in misleading him ; such are every where to be found ; it only wants a little penetration to discover the proper people to apply to. Let him invite them to dinner, and now and then give them a bottle of generous wine, and chat freely about country business. He will find it no difficult matter to learn from them the chief of what they know.

Now I do not offer these means as an instruction how to make himself a complete master of agriculture, or to make at once a fortune by it ; all I pretend he will gain by it, is such a ground-work as will afterwards allow him to erect the wished-for building on. He will, in this manner, gain experience sufficient to venture, I should apprehend, in three years, on a large farm, with the assistance of a bailey. There is no reason for a man of small fortune, or rather of not a large one, repining at his time sacrificed merely to experience in common husbandry.

One of the chief objections to a bailey is the ignorance of the master : by such an apprenticeship as I propose, he will know enough of the business to direct the bailey what he would have done, without fearing to expose himself by absurd orders (I am here speaking of the common practices), and without any necessity for its being conducted without his own assistance. He will also know enough of prices to direct the bailey how far he should bid for any commodity at a fair or a market ; and the price he will allow him to sell at ; all
which

which are powerful means of controuling even the allowed knavery of such a servant.

Unless a gentleman reduces his business to very great simplicity, he will find too great a fatigue, and too constant an assiduity, requisite to render farming of considerable profit. Keeping all the people employed strictly to their bargains; overlooking the servants as to their hours of plowing, and other work; and likewise the manner every thing is done in, with a variety of other articles, require an unceasing attendance: no gentleman that keeps any company, or, indeed, that amuses himself with any thing besides his business, can perform it; he must employ a bailey, whatever be his opinion.

Respecting his management of that bailey, a little consideration and experience will shew that business, of ever such an extent, may be thoroughly overlooked and known by a master through such first servant. It is not requisite to observe and watch him as much as he does the rest of the people; a much less degree of attention will effectually do. The gentleman should have a minute-book of work laid before him every evening, that he may know distinctly every thing his teams and men have that day been employed about: as he knows the measure of his fields, he can, at any time, tell if the proper quantity of work of all sorts be executed or not; and reprove his bailey for omissions. As to the manner in which the work is performed, it is very easy, when he rides out, to come unawares upon ploughs, to see if they go their proper depth; or upon carts, to see that they load fair; or into the hay or harvest field, to see what hours the people work, and how they perform their business. When a bailey finds the business under him observed in this irregular manner, for which neither he or the men can be pre-

pared, he must necessarily be spirited, and alive in his attention, and keep every part of the business in good order. In case of absence, when he returns, he has recourse to the minute-book, for every day's work of all kinds: a method so exact will not allow him to be deceived. When corn is thrashed, carried out, or sowed, or bought for any purpose, all is entered, so that neither mistakes, nor foul play can ensue without confusion, and consequently discovery.

All money matters should go through the hands of the bailey, who must keep an open book in the most regular manner, to which the master can have recourse at any time: (a room, for instance, with each a key): this book should be balanced every Saturday night; and whenever much money is in hand, which the master must always know by the minute-book of transactions, he should order the bailey to bring him such sums as he thinks proper, to be charged to his own account, that no temptation of consequence should ever exist to induce the man to swerve from his fidelity. But when I say *all* money dealings, I except the most important: a considerable balance in the hands of a corn merchant, or a salesman, may be drawn for by the master; but it should be entered by the bailey in the account of receipts, and immediately wrote off in his master's account. The reason of this is, that the bailey may himself be convinced of the annual profit or loss; that in case the latter happens, he may receive a proper reprimand for general conduct: and, on the contrary, in case of considerable profit, the gentleman should make him a gratuity, by way of encouragement.

This mention of accounts reminds me of the vast importance of regular accounts to a gentleman farmer. This is one of the advantages he has
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over the common farmer: and, I think, one of the greatest. The latter knows whether his business is, upon the whole, profitable or not, but only guesses the particulars: some articles may even be unsuccessful, without his knowing any thing of the matter; and as to the aggregate of annual profit, he never knows the real amount of that.

But I have heard some people ask, *What is the good of accounts? Will accounts turn a bad farm into a good one? Or will they recover losses that ignorance have occasioned?* Nothing can be more mistaken than such ideas. If a farmer knows not the degree and amount of his profit or loss on every article, and by every field, it is impossible he should possess a due experience of the past, or ever be able to make it a guide to the future. Every common farmer guesses at all these particulars, and acts accordingly, which shews their ideas of the utility of the knowledge. What is experience, but knowing that certain causes have been attended with such and such effects? But what is the knowledge of effects, where a thousand are all jumbled into one account, with nothing but random guesses to form distinctions?

Various fields of wheat are managed in a very different manner; is it not of consequence to the farmer to know exactly the product, the expences, and the neat profit of each? Is he not thereby a better judge of the merit of each method he uses? And will he not be able to manage future crops with more *experience* than if he had gained none of this knowledge? From keeping such an account of each field, he knows the proportions of rent, seed, labour, wear and tear, &c. &c. and the crop; and sees in what manner the latter answers to the former; and, by a comparison between different fields and modes of culture, is enabled

abled to judge which is most probable, in future, to pay him best. Two fields of the same soil are cultivated exactly in the same manner, save, that one is manured at a large expence, the other not. To what degree does this manuring answer? Is the answer to this question of no importance? Where is it to be gained, without exact accounts? This instance might be multiplied to ten thousand, in not one of which would experience be clear and valuable, without a regular account.

It is the same with grass lands; their products of all kinds; with every sort of cattle. Twenty beasts are annually fatted, that are kept the year through; and twenty milch cows are also kept: which pays the farmer the best? This is a point of no slight importance; for the difference may be very great: but is it to be known from that general account which every man carries in his head, which is nothing more than an idea? What accuracy can there be in accounts so kept?

The farmer stocks himself with two sorts of sheep, ewes and weathers; they are both fed alike: which answers best, and to what degree? Even this plain case can be resolved with no degree of certainty, without a regular account being kept of each.

When a man turns over his books, and finds a regular balance of profit and loss on every article, he is enabled to review his business, to consider what have probably been his errors, and wherein he has been most successful. The result of such reflections is *true* experience, not the random notions that are carried in the memory. After some years farming, upon looking over his accounts, he finds that wheat has in general paid him very indifferently; and that, upon an average of all
 sorts

sorts of treatment and seasons, barley, on the contrary, has been attended in the like variety, with a considerable profit. Upon such a review he finds that his dairy of cows pays him far better than his fattening beasts: that his ewes and lambs are much more profitable than his weathers. He finds by the quantity of work performed by his horse and ox teams, and the expence of each, that the latter are more advantageous, as five to three. This knowledge is beyond all doubt the most valuable part of experience, and can no ways be gained but by regular accounts: for in what manner can such a review of one's business be otherwise made? Will any one be so absurd as to assert all, or any part accurately, can be carried from year to year, for four, five, six, or seven, in the head, and founded originally in nought but conjecture? Nor should fugitive notes and memorandums be called *accounts*; nothing can effect this great end but a ledger regularly kept.

In this light surely accounts may be said to be the foundation of good husbandry; and highly possible to convert a bad farmer into a good one. It is by means of them that gentlemen, in one instance, have so great an advantage over common farmers, as to balance, in a good measure, all the superiorities of the latter. It is by these means that gentlemen may, if they please, gain more experience in five years, than a common farmer can in twenty. Many of them give into unnecessary expences; prosecute more experiments than their fortunes will admit; and bring themselves, by degrees, and unknowingly of the amount, into a want of money. A man that keeps regular accounts may certainly do the same; but he must infallibly know how much he so expends, and be warned

warned regularly of the danger ; which are points of no slight importance.

It is, at present, a common thing to hear disputes in conversation about gentlemen's profit by farming. Some, with great earnestness, assert they make money by it ; and others are as strenuous in contradicting the possibility of it. When I hear these disputes, I conclude, of course, that neither party know any thing at all of the matter ; as twenty to one whether accounts are regularly kept by any of them.

It may be said that regular accounts would be too much trouble ; but, on the contrary, nothing is so troublesome as *irregular* accounts ; and, as to none at all, I never yet met with any body that did not pretend to keep some. A very little thought would make any man perfectly acquainted with all the accounts a farmer can want. The subject is of importance enough to demand a little further consideration.

The first book to be mentioned that a gentleman farmer should open, is *A Minute Book*. This should be a regular journal of all the transactions of the farm. The bailey should keep this. The following is the form which I use.

————June 21.————

Three ploughs in *six acres*. _____

A pair of harrows, ditto, covering the turnep seed. _____

The frosty cow calved. _____

The waggon to *London* for ashes. _____

June

———— June 22. ————

Four ploughs, half a journey in *eight acres*; the
horses then went to ———, for dung.

————
The black sow pigged 9.

————
Begun to hand-hoe the carrots in *the three acres*
the second time.

————
Sold five fat beasts to the butcher; the price 43 *l*.

This will explain my meaning: there can be no transaction of any sort but what should be thus registered. I recommend the short lines between each article, to keep the bailey from crowding his writing close together. Those kind of people will be so sparing of paper, that it is difficult to read what they write.

Next comes the *Cash Book*, to be balanced every Saturday night: this is only for a check upon the person who keeps it; and that the disbursements and receipts may be regularly known. If a gentleman keeps his own books, it is not necessary.

The *Ledger* comes next; in which an account, debtor and creditor, is opened for every field, by name, in the farm; also for every article of live stock; one for wear and tear, &c. &c. &c. so as no money can be paid or received, no exchange of commodity made on the farm, without an account there being open for it. Two of them should be kept; one the bailey should post the cash book into; that is, enter each article of cash expended or received, in its proper account; and also to substitute for a Journal, the use of which book is too complex for a bailey to keep.

What

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What I mean by this, is the carrying transactions that have an amount in value, without any money being paid or received, to their regular account. For instance: an account is opened in the Ledger for the *Six-acre grass field*. On one side all the expences, and on the other the receipts for hay sold: but, instead of selling this hay, suppose it delivered from the stack to the horses, how is this to be carried to account? In regular book-keeping, a merchant would enter this in his Journal, *Horses debtor to six acres grass* for so much hay delivered; and then post the sum to both accounts in the Ledger. But the gentleman farmer turns at once to the account of horses in his Ledger, and writes on the debtor side, *To six acres grass*, so and so: and then, in the field account, on the creditor side, *By horses*, so and so.

In a word, he skips the Journal, and, at the same time that he simplifies his account, keeps them perfectly regular.

All this I suppose to be done by the bailey; and all is so very plain, that any ingenious fellow would form a clear idea of it in half an hour. But the master should keep the fair Ledger, in which he enters every thing in the same *manner* as in the the other; but reduces them to distinct heads. In the first Ledger they stand in confusion; many small sums of cash, and parcels of hay, corn, &c. &c. delivered at different times: his business, therefore, is to throw them, at the end of the year, into one view, under distinct heads. For instance: he finds a corn field account, with a great number of sums of cash; and corn sold, and some delivered at home for cattle. He consolidates all the expences into a few totals thus:

Debtor

PRACTICAL ESSAYS.

111

Debtor—Six acres—Creditor.

	<i>l. s. d.</i>		<i>l. s. d.</i>
To cash for ex-		By hogs for 30	
pence of tillage.	8 6 0	qrs. of barley	
Ditto seed	3 0 0	deliver'd	24 0 0
Ditto rent	6 0 0		
Ditto labour	4 0 0	Loss	7 7 6
(<i>Exclusive of til-</i>			
<i>lage</i>)			
Ditto manure	8 0 0		
Ditto fundry			
small articles	2 1 6		
	31 7 6		31 7 6

Now the advantage of having such a view as this of every crop, is immense. By looking over the particulars of the expences, he sees which run the heaviest, and knows, from thence, the proper channel, in the like cases for the future, for his chief expence to flow in.

At the end of every year an account must be taken of all the stock; the implements of all kinds valued, and carried to the new year's account accordingly: and, as the article of *wear and tear* includes every thing relative to implements, the annual valuation will throw into that account the *decrease of value*, as well as articles of new expen-
diture. The same observation is applicable to the accounts of horses and draught oxen, which being valued in that manner, give the expence of horses, &c. declining in worth; an article that is never dream'd of in common; and yet the sinking of a horse's value is as much a part of the expence of tillage, as the reparation of a plough. By these general methods, a gentleman every year knows,

to

to a shilling, the year's profit or loss, and the sum of money he has employed in agriculture.

And these numerous and very beneficial consequences are reaped at so small an expence of time and trouble, that it is amazing we do not oftner see the practice. The bailey's share, which is much the most considerable, can never amount to half an hour in a day, if he writes a tolerable hand, and is the least ready at accounts; and a bailey that is not these, is nothing: they are as requisite to his office, as the knowing wheat from barley. The master's part of the business comes but once a year, and may be a week's easy employment; but the bailey may also do three-fourths of that, viz. the division of the expences into distinct heads; but it must be under the gentleman's direction. Now can any one raise a doubt of the benefit resulting from this practice not answering far more than such an expence! I think it is impossible, and that many do at present practise it, and that more will hereafter do it.



I shall, in the next place, take the liberty of offering a few remarks on the employment of servants and labourers, as far as it particularly concerns a gentleman farmer; which is a point of very great importance in the general œconomy of a farm.

If a gentleman keeps a bailey, servants are more profitable for all sorts of team work, (except filling a cart) and taking care of cattle, than labourers, because such articles require a constant number of men to be absolutely depended on; but I am in doubt about this point if no bailey is kept to see regularly to the hours and work of these servants: I am confident they will not obey the master

master even tolerably, unless for a month or two, perhaps, when they first enter into his service. A farmer who *lives* with his men, and, perhaps, works with them, will always be much better obeyed. This point, I must own, has troubled me more than once; nor could I ever manage to be totally at ease respecting it. There is no part of farming so irksome and provoking to a gentleman: he cannot take a walk or a ride without having proofs that every farmer around him has more work for his money than he has; and how to remedy it without a spirited active bailey I know not.

Scolding and threats, and high words, either produce such impudence as no gentleman will bear; a revenge that will much injure him in cattle, crops, or some other point; or a deceitful conduct, that is pretending to do better in the thing in question, but acting ten times worse in some other respect. For instance: you are troubled to get your fellows to plow as much in a day as they ought; after many words, you think you have gotten the day: but examine how it is plowed, perhaps not better than scratched over.

If, on the contrary, you try what a mild, easy behaviour will do, and take no notice of trifles, you will infallibly be imposed upon in every particular; and your servants will soon learn to be impudent, and despise your authority: and I have had such experience of numerous dispositions among farming men, that I will venture to assert (miracles excepted) the impossibility of this not being the case.

I have often reflected on the different methods of a gentleman's managing his farming servants when his farm is too small to afford a bailey, and

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I must

I must own I could never fix on any conduct that was exempt from great objections. One management is to give the head man so much per annum wages above the price of the country, and above what he agrees to take, that he may be under some *fear* of losing his place: while a gentleman pays no more wages than the common farmer, he has not a sufficient tie upon his men. But such extra wages he must not be suffered to consider in the stile of making him any thing verging towards a bailey, in slackening his work; he must, on the contrary, be told, on hiring, that his extra wages are given him for absolute and implicit obedience.

Let us suppose a dialogue between the master and man upon this point of hiring. My readers will excuse my dwelling on these minutiae of a gentleman's management: those who experience them, will either not call them trifles, or allow that trifles are of very great importance.

Master. You say you can plow, sow, mow, make a stack, and understand cattle.

Man. Yes: I won't turn my back on any man for that work.

Master. And that ten guineas are the lowest wages you will take.

Man. I can take no less. I can have it any where.

Master. Very well; you shall have ten guineas; but if you consent to obey me in the most exact manner, without ever talking about customs, or what not, you shall have twelve guineas a year.

Man. O, yes, Sir, I'll obey you; certainly will, Sir.

Master.

Master. Suppose I order you to plow your land by moon-light?

Man. (*Hums and Haws*) Can't say, Sir. I he'er did work of that sort.

Master. Nor should I choose to have my land plowed in that manner; but if I give *an order* for my men, horses, and ploughs to go immediately to work, at twelve o'clock of a night, as dark as pitch, I would be obeyed without the least pause or hesitation. You understand me: all I mean is this; whatever I order must be done without any reply, no talking of customs.—What quantity of land do you generally plow in a day?

Man. An acre.

Master. But my horses oftener plow me five roods. At seed time, always an acre and half. But if I give the order for two acres you must execute it well, and without hesitation.

Man. But how am I to take care of my horses after plowing two acres?

Master. No matter if the horses are not taken care of at all; that is my concern, not yours. — You see the conditions of my service. I would not have you engage with me, unless you are absolutely certain you can submit to unlimited orders.

Not a man, perhaps, in five would venture to engage: and of those who do, many would think of the two guineas, more than the equivalent they were to give for it. But I do not mean that the gentleman should ever order double the custom of the country. He should fix his eye on one acre for instance; but frighten the fellows, by talking of much more: but they should every now and then receive orders as a test of their obedience: an acre and half a day, an acre and quarter, &c. &c. &c.

and a sharp eye kept on the manner in which it is performed. Something beneficial I believe might be done upon this principle; but, undoubtedly, the extra wages would be, with some servants, in a good measure wasted. The loss, however, is too trifling not to be worth some years of trial; for two or three guineas a year is no consideration compared with the difference of five or six horses performing a fair year's work, or but an indifferent one. If plowing, for instance, be calculated at four shillings per acre, the difference of a rood a day is two shillings in two ploughs, or thirty-six pounds a year, besides the profit upon it, and the chances in favour of catching seasons: and although the team is not employed always about plowing, or harrowing, yet in all works the difference is the same, and very great the amount. If forty shillings or three pounds can be spent, so as to gain fifty pounds, it certainly is sufficient inducement to try; or even five-and-twenty.

Another method I have thought of, is to employ none but labourers; and have no kind of work but what is done by the piece. In Suffolk there is scarcely a species of employment that is not reduced to a common price. In this way the gentleman should draw up a list of *every* kind of work, and the prices he will give for each article; which should be, if any thing, a little above the standard. This paper should be pasted up in the room where the labourers victual, or in some other common place, where it may be at any time seen. These prices should be accurate, and, in case of work not common, well considered, for they should be never varied on any pretence whatever. All work that employed the teams should have this proviso, that the oxen should be fed, and the horses fed and cleaned into the bargain.

If

If any work occurred in which it was found that a price could not be fixed, in proportion to the manner in which it should be performed, the gentleman, if he did not approve the offers of the men, should hire others occasionally to do such work.

This method has many very great advantages, and some disadvantages: of the latter, the principal would be the necessity of watching all their operations with a very strict eye, to see that *well* doing was never sacrificed to quick doing. Among the benefits may be reckoned the certainty of the teams paying well for the expence of keeping them; and I must remark that this is a principal object in husbandry; for as matters are commonly managed by servants, the horses of a farm eat up three-fourths of the produce. In the way which I now propose, there would be no fear of having them idle; they would be always employed, and every day's work would be a good one; a rood at least, and half an acre many times, they would regularly plow more than any gentleman's horses in the country. But in this management they should in reason have a greater allowance of oats than common.

In dubious seasons, particularly seed times, the advantages of this conduct would be immense, for every kind of work would be carried on as fast as the master himself could wish; which is never the case, by many—many degrees in other systems. It is impossible, upon the whole, to determine which method would be most suitable in all places: for in some the first would be preferable, and in others the latter. The greatest difficulty with the labourers would be in places where very few parts of country business are reduced by common practice to a price by the piece.

But whatever method of conducting the labour of a gentleman's farm was pursued, there are several means of smoothing difficulties, and introducing order and regularity into employments of all sorts: and these are applicable to both large and small farms, tho' more so to the former.

Among other particulars of this sort, I should advise a gentleman to have all his working hands rung out and home by a bell. A large bell should be fixed on the top of one of the buildings, which should ring up the men of a morning, and out a second time with their horses harnessed, themselves mounted (the sacks of seed, if sowing time, ready) for the call to march forth to work. Whenever a field was finished plowing, all ploughs, harrows, &c. should be brought home; and when a new one was began, the ploughs, &c. should also be on the sledges ready with the men and horses to follow, wherever the bailey leads them. If tillage is not the work, or only part of it, the other teams should always be under the same management; they should be in the waggons, carts, &c. ready to start with the rest. All that were not in order for the call should be reprimanded, and a minute made of it in the bailey's pocket-book (one kept for that purpose).

At a proper time, for instance, after eight or nine hours work, the bell should be regularly rung again, to call them home from the fields; and no team suffered to come home on any pretence whatever till the bell rung, nor for any weather; because if that required them to come home, the bell should be rung accordingly. Some works will admit of a variation in this respect, in which case a boy should be sent to such teams; but none ever suffered to leave work without a direct order,
either

either by bell or otherwise. In case of any failing in this part of their duty, a minute, as before, to be made of it. About half an hour after the bell should ring again for dinner: and in an exact hour it should ring them out *from* dinner.

In a considerable business it would much favour the general design of this regularity, if each team had a separate set of implements assigned to it. For instance, each stable to hold four or six horses, and each to have a shed adjoining for a waggon, two or three carts, three ploughs, and two pair of harrows. This would occasion no extra expence of implements, for they ought undoubtedly to be in such plenty, that all the teams may at any time be thrown to one sort of work: if this is not the case, business will suffer often.

Once every quarter of a year the day's work should be half abridged, to have a general review; but none of the men should know of this day before the ringing of the bell which called them home so much before their time. As soon as arrived, an order should be given to bring forth each set, his implements, their horses harnessed, their oxen yoked, their spades, shovels, forks, &c. all numbered to the number of the team. All of them called for by a catalogue, and examined; deficiencies noted in the *black* book: the same with every thing out of order, or that carried any marks of carelessness. The cattle attentively examined, to see that none were lame; that they were in good health; and that they looked well fed and cleaned; and, in all respects, as they ought. In the whole examination, every thing good and bad should be minuted, and carried to each man's account, in the same manner as before mentioned, respecting the work. When the whole was finished, the

gentleman should come out on horseback, with some little parade, (and attended by any company that he might have with him) to make the occasion something solemn in the eyes of the people.

He should draw up in front of the line of teams, and call on the bailey to read over the account, beginning with *Team, No. 1.* As soon as every account was finished, he should give a little harangue (with much solemnity in accent and manner) of praise or condemnation, according to the merits of the case; and, if the former, order them a proper reward. For which purpose certain things should be ready—suppose a parcel of new clothes of all sorts, to be divided with a small sum of money to each man.

If, on the contrary, a man has been found faulty, he should be reprimanded; and the great difference pointed out between a faithful servant who meets with his master's praise and rewards, and an idle or a careless one that receives his displeasure.

In case the account of any of them has been very *black*, and that for more reviews than one, he should order him to be discharged on the spot, with marks of disgrace.

To the first man of that *number*, which upon the last four annual reviews has most merit upon the whole, the most valuable reward should be given, with some durable testimony, with his name engraven on it, and the occasion. Some piece of household furniture, or any thing better that could be contrived. And wherever particular merit was found, an advance of wages should commence.

Some

Some may think this a system of trifling; but from observations I have in every respect made on the temper of these people, I have reason to be confident the effect would be very great. It would be absurd to practise it in a small business: but when from fifteen and twenty to an hundred servants are kept, it would give such an air of novelty and liveliness to the business, that the fellows (some few excepted) would themselves like it not a little. And the assigning implements to each team, and making the men answerable for their being always in good order, and the harness, &c. &c. the same, would keep all these matters in thorough repair: whereas, in the common course of business, work of importance frequently stands still, that something or other may be mended; a defect not discovered till just the moment the thing is wanted.

With respect to the horses, the benefit of it would be of very great consequence; for the men would have a great inducement to use them well, to be careful of lameing them, to keep clean and free from all distempers that arise from neglect. A master that thinks such a point not of importance, knows but little of business.

This conduct would have a vastly greater effect than all the hard words and scolding that could be given from one seven years end to another. Country-fellows are so accustomed to this sort of correction, that they are absolutely hardened to it. To be obeyed, some method must always be pursued that is new to them. Even the conduct I propose, would presently grow a matter of custom, and be unheeded, were it not for the rewards and punishments; the variety and substance of which would ever keep up the attention of the men; for a handsome present, and a rise of wages, are such

such striking affairs in their eyes, that they would never be brought to disrelish the institution.

Suppose a gentleman, who carries on a very considerable business, expended in this manner twenty or thirty pounds a year. A single man costs him above twenty pounds, and can he suppose that the difference between the ready obedience, the uncommon regularity thrown into every thing, the great quantity of extraordinary work performed, the unusual order all his implements, harness, &c. are kept in, the security of his draught cattle from abuse, and in being thoroughly taken care of; can he think, that the difference between these and many other articles and common management, are not of more importance than the work of one man? May I not say (in a considerable business) than that of five?



Another œconomical point in a gentleman's management, which I take to be of much consequence, is to convert the product of his farm into as few articles of sale as he can, consistent with his profit.

A bailey has a greater opportunity of being a knave in buying and selling than in any other part of the business; for which reason that part of his employment should be contracted as much as possible. And if no bailey is employed, a gentleman will find it a disagreeable part of his business; and, consequently, the same reason for reducing it to as small a compass as possible.

Wheat cannot be consumed upon the farm, nor converted into any thing else; for this reason it must be sold as other farmers do: not, however, in dribs of twenty sacks at a time; to have
twenty

twenty or thirty markets to go to, and as many bargains to make: but all laid up in a grainery, and as soon as the whole crop is threshed, sold by *one* sample, and in *one* parcel. Which conduct would reduce the trouble of a gentleman's selling it himself, whether he had or had not a bailey, to a mere trifle. It would likewise be of some consequence in the price; for wheat sells, in general, better during the summer, than the winter. One cannot move one's length in matters of farming, without finding something or other that requires money in plenty. The conduct now in question is, undoubtedly, very beneficial; but, if the gentleman did not at first appropriate a sufficient sum of money to the purpose of husbandry, he will find himself too much cramped for the want of it, to be able even to sell his corn when most suitable. Nothing can go on as it ought, if a farmer is ever for a single hour, in want of an hundred pounds.

Of oats no more should be sown than wanted for the horses.

Barley, pease and beans, should all be appropriated to fattening hogs, which (manure considered) will pay better than selling them at market, all expences of carriage, &c. &c. &c. taken into the account, besides the circumstances of trouble, and taking the sale out of the bailey's hands.

Potatoes should be applied to the same use.

Carrots may either be given to the hogs, or to any other sort of cattle.

Natural and artificial grasses, green and in hay, cabbages, turneps, &c. &c. are all convertible into beef and mutton. A dairy is much more complex; but if it proves more profitable than other cattle, convenience must in that, and other circumstances, give way to profit.

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There are two methods of selling cattle; both are attended with little trouble, nor is the bailey trusted in either. One is by driving them up to London for sale by the salesman: the other, by advertising an auction twice a year; one about the middle or the latter end of April, for all sorts of beasts that have been fatted in the winter; hogs included. The other in autumn for such as have been summer fatted

There are many situations in which it is not profitable to drive to London; and others in which it is peculiarly so; one of these methods will suit every part of the kingdom. In case of the latter, in a few years, many butchers, &c. would depend on the auction, and regularly account on purchasing at it. But, at all events, a gentleman should absolutely reject the low dirty way of making twenty or thirty different bargains with country butchers: an odious work for himself, and the greatest source of villainy, when in the hands of a servant, that can be invented. The advantages of selling by auction are so many, that they will more than balance a lower price than separate bargains would gain; for that leaves no bad debts, the money is all paid at once; there are no expences of driving, nor falling off in flesh by it; and all sorts of commodities are sold, good, bad, and indifferent.

If cows are not kept for a dairy, all the products of a farm may be reduced to, 1. wheat; and 2. cattle: all the first sold in one bargain, and the second carried all to two accounts, a salesman for hogs, and another for sheep and beasts; or sold at two auctions: by which method, the gentleman's trouble is reduced almost to nothing, whether he has or has not a bailey. A simplicity in business is valuable of itself; for when
products

products are of such a great variety that they cannot be united in sale, some trifling matter is for ever calling for that attention which should be employed on matters of importance.



Another point of some consequence in a gentleman's œconomical management, is *house-keeping*, so far as it concerns the farm. Except in the greatest houses, where different tables are spread for different ranks of servants, all live in the same manner; and no gentleman should imagine that farming will answer while the people that carry it on are fed in the same manner as family servants. This is another of those points which, at first sight, may by some be thought trivial, but is really of importance. When only one or two men are kept, the grievance is not worth noting, (although the loss, it should ever be remembered, in most points is proportioned to the farm) but when many are employed, the case is very different.

In large farms, that employ from four or five servants, and upwards, it is certainly advisable to have a house kept separately for them; any distinct office, for a kitchen; with chambers or rooms annexed, in which they may all be lodged and fed, under the directions of the bailey; with no intercourse of any kind allowed between the family and them: whoever keeps many men, will find something of this management highly requisite. There is no slight satisfaction in knowing exactly what every thing costs one; and particularly so in farming, in which it is absolutely requisite, for the sake of clear and exact accounts: but such cannot be effected, if a family and farming men are mixed together;

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ther; for in what manner can their board be
calculated with tolerable accuracy?

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I shall conclude this sketch with a few remarks on the necessity of gentlemen's conducting their agriculture with spirit, if they would have it profitable; or if they would even have it truly amusing. Let them manage in what manner they please, yet common farmers, who are not above working themselves, will, in numerous cases, have the advantage; it should, therefore, be the gentleman's business to balance that advantage by others, which it is not probable the farmer should command.

He ought, above all other points, so to proportion his land to his money, that he may never be disabled from practising, in all cases, what he has reason to think is right.

He should adopt the culture of such profitable vegetables as are not common in husbandry, if his soil is proper for them, which can scarcely be doubted.

Respecting all tillage crops, he ought to lay it down as an universal rule, that none should ever be sown or planted if the soil is not in *excellent* order to receive them; that he may ensure, as far as it is possible, good crops. He ought, at all events, to determine to keep constantly a great stock of cattle, in proportion to his farm, as a sure fund of profit both in themselves, and in the article of manuring. He should adopt some particular system of conduct relative to labour and a bailey, that may obviate the great evils commonly resulting from gentlemen's management in that point. He should,

should, on many accounts, reduce the products of his farm to as few articles of sale as possible.

These points, it should be observed, are very applicable even to gentlemen who farm chiefly for amusement; for if a farm be merely an experimental one, yet it is highly expedient to banish all confusion, for I know of no diversion that arises merely from a want of order. And let a man's fortune be ever so considerable, a certain degree of œconomy is necessary, even in pleasure. If a gentleman, without any attention of this sort, can try an hundred experiments annually, by means of a certain sum he appropriates to agriculture; *with* proper management, that hundred may be doubled or trebled, and no extraordinary expence incurred: and these, I think, are matters well worth the attention of those who practise husbandry, whatever be their motive.



ESSAY VI.

Of the cheapest way of manuring land.

THERE are so very few farms situated on soils that are rich enough to need no manuring, that the enquiry what manure is cheapest, is certainly one of consequence. It may be laid down almost as a maxim, that there is no farming without manure, and that in plenty too; for the difference is so very great between the crops from land that is in good heart, and those from a poor exhausted soil, that the comparison is almost beyond calculation. It should never be forgotten that the expence of cultivation is the same upon the latter as the former. Plowing, harrowing, seed, sowing, rolling, water-furrowing, reaping, harvesting, and carting, when these are the same upon a field that yields two quarters per acre, as upon another that yields five; what prodigiously superior profit must arise from one, over what is received from the other!

But the necessity of thorough manuring may, in part, be gathered from the practice of all good husbandmen, from the earliest account of time. Now, common farmers are in no circumstance apt

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to be spirited, unless the profit has nothing equivocal in it; and we find them, throughout the kingdom, very anxious in procuring manure: however faulty and short-sighted they may be in some respects concerning its management, one cannot object to them a false idea of its importance; but a too great eagerness to gain the benefit of it in a number of successive crops.

The grand dispute, in this matter, is the method of procuring manure, the variations of which are extremely great; different almost in every situation. The present point is not, therefore, to treat of every practice, which would require a volume, but to sketch them in general, with a few remarks on the means of supplying the capital articles, where they are not to be had.

Marle may be called the prince of manures; both for the degree of fertility which it occasions, the time it lasts, and the lowness of the expence. In those countries where it is most profitably used, a manuring with marle, that lasts good twenty years, costs from fifty shillings to four pounds four shillings, which is surprisngly cheap. Supposing the price four pounds, it is just four shillings per acre per annum; which may be called one plowing a year. Now, let the writers on the New Husbandry consider this state of the case, and reflect whether their system of manuring be reasonable or not. Monsieur Duhamel, or Monsieur du Chateauvieux, I forget which, advises the countryman, when he is about to manure his land, to calculate the expence of it, and lay out the sum in tillage; assuring him that the latter will pay him much better than the former. Praising one part of good husbandry in exclusion of another, is the absurdity of those only who give into the hypothetical rage of system, which is
alone

alone sufficient to darken and perplex the clearest minds.

Tillage and manure are both absolutely necessary; and that, perhaps, in proportion to each other; for manure, from its vegetative power, makes the seeds of weeds to sprout so quickly, that, unless excellent tillage be given, the soil can never be clean. But to think that one or two ploughings annually can possibly equal the benefit of marle, is an evident absurdity.

Clay is, I apprehend, in no respect equal to marle, except the *duration* of the benefit received from it: the degree of fertility it confers, is not comparable to that of marle; but a very good clay may certainly equal, and has been found to exceed an indifferent marle: the expence is the same.

Chalk is used in many parts of England with a success equal to that of any marle under the sun; but it is very observable, that wherever this manure is so very excellent, it is universally the fat, soft, soapy kind: quere, therefore, whether that sort and marle be not the same thing under different names? The expence of this manure varies like that of marle. It lasts as long.

Lime, I apprehend, is the most common and general manure of any that is used in England. It is so much valued in many parts of the kingdom, that the farmers think no management will do without it: but it is very observable, that we experimentally know little of its real utility. The few trials that have been published on it, prove rather against it. It is said to be much of that nature which is requisite for assisting the earth in yielding its fertility, but gives no increase. However, but little is well known concerning it: upon some soils there can be no doubt of its being ex-

ceedingly beneficial, particularly the black moory, peat-earths, and boggy lands: and this seems to prove the justness of the abovementioned observation, for these soils certainly abound much in vegetative virtue, but are greatly in want of being enabled to exert it. The expence of liming, in various parts, is so extremely different, that it is impossible even to sketch any thing like a medium. It rises from ten shillings to ten pounds. Lime nowhere lasts long; two or three years, and, in many places, only one, are the common duration of the benefit.

Dungs of all kinds are much affected, and with great reason, by the farmers. The general method is to fodder the straw of the crop in a yard adjoining the barns, where all sorts are collected together, forming a compost, the chief part of which is rotten straw: the benefit every one finds from it is very great; but in the quantities commonly used, viz. from ten to thirty loads, the fertility it occasions does not last long; it is a common notion that land should be manured with it every three years; in some places four. The expence is difficult to calculate, as it *costs* the farmer nothing but carriage, and perhaps turning over.

In the neighbourhood of many cities and towns, farmers buy all sorts of stuff they can get; but this is by no means so general as it ought.

It is not my present business to give a complete catalogue of manures, I would only sketch a few of the principal by way of a guide to direct in the consideration of some that I shall propose. I therefore pass over, without mention, a number that are not material in that light.

There

There are many situations that either cannot command marle, chalk, clay, lime; or they are upon such soils as they do not agree with; in such places, we generally see the farmers confine themselves to their yard dung, or to the folding their sheep, if it is the custom of the country: unless they are near a town that affords much manure, and it is common to purchase it.

Such a situation is unfavourable to husbandry, and a good farmer ought to contrive some method or other for remedying such an evil. The grand one which I shall in this case recommend, is the keeping a great stock of cattle, and the purchasing as much straw and stubble as possible: and this method of raising manure is, I am confident, the cheapest that can in many places be practised. But the general idea is very contrary, insomuch that nothing is more common (and indeed the more favourable to such cultivators as have the spirit to act differently) than to see the farmers *selling* their straw to whoever will buy it. This certainly shews a very false notion, but I do not think it proves against the proposition: for it is to be observed, that few farmers keep half the cattle they ought, and consequently many of them cannot convert their straw into manure with any profit, consequently they are obliged to sell it: and this is so often the case, that I doubt not but the practice is often thought the result of choice, when it is the mere effect of necessity. This is one of the many blessed effects of their overstocking themselves with land; until they cannot afford to buy cattle even to convert their own straw into manure. There cannot be a more fatal error, or one that is more likely to end in a farmer's ruin. It is much like letting their flocks of sheep out for their neigh-

bours to fold at so much per week, which is practised in some places, and I doubt not but in others they sell their yard dung.

A quantity of straw turns with a good many cattle to much more dung than many would at first imagine. I have found, by experiment, that twenty-seven head of cattle will convert sixty-five loads of straw and hawlm (besides what they eat of it) into about three hundred loads of dung.

Hawlm, or wheat stubble, sold for six shillings or seven shillings a load, and straw, at an average, of all sorts and seasons, at about twelve shillings. Each of the above sixty five loads made about three and one half of dung. Horses well littered yield from twelve to seventeen loads of dung per horse.

Five loads of straw, and four of stubble, were converted by eighty-eight fat hogs into ninety loads of very rotten dung. But they had not litter enough; they would have made twelve or fifteen loads into manure. As it was, the straw made ten loads for one. I have found in these, and other proportions, that the manure is excellent; but that from the hogs much the best.

Let us now calculate the expence of manuring in this manner. We must calculate that the cattle in the yard *eat* none of the straw, because what they eat should be carried to the account of their nourishment, and not that of manure: this matter will be stated plainly, if we calculate the dung as five to one. The loads of dung, cart loads of forty bushels, and those of straw, large waggon loads.

One hundred loads of straw will make five hundred of dung: the expences will be as follows:

PRACTICAL ESSAYS. 135

	<i>l.</i>	<i>s.</i>	<i>d.</i>
100 loads of straw, at 12 <i>s.</i> - - -	60	0	0
Carting 250 loads of ant or mole hills, turf, virgin-earth*, &c. &c. into farm-yard, at 3 <i>d.</i> a load digging, or 5 <i>s.</i> a score, and 7 <i>s.</i> a score or day for the team, 12 <i>s.</i> a score	7	10	0
Mixing 250 loads of earth with 500 of dung: 750, at 1 <i>d.</i> - - -	3	2	6
Re-carting the compost on to the land, and spreading it, at 3 <i>s.</i> a score or day, and 7 <i>s.</i> the team	18	15	0
	£	89	7 6

This is about 2*s.* 4*d.* per load, spread on the land: but it is observable, I have charged the teams at 1*s.* per horse, carts, and man, which is what they may be hired for in most countries: and much beyond what they cost the farmers. This circumstance will near, if not quite, reduce it to 2*s.* per load; but whether it is called 2*s.* 2*d.* or 2*s.* 4*d.* is no great matter, for all are surprisingly cheap. Twenty loads per acre of this compost come but to 2*l.* and the benefit may certainly be calculated at four years duration in great heart. I should choose to renew at the end of four years; but the land would, beyond a doubt, be perpetually on the increase of fertility. The expence is therefore ten shillings per acre per annum.

Marle was found to be 4*s.* per acre for twenty years duration. At first sight this may appear to be vastly cheaper than the dung; but nothing is more true than the contrary. For three years

* Chalk is excellent for this use; and marle better still.

after marling, the benefit is not so considerable as when the marle is become well mixed with the soil. The first year it is nothing; the second it begins to come into play; the third a benefit is found from it, though not equal to the fourth, fifth, &c. and the five last years of the twenty, the effect is nearly worn out. The soil may always be the better for it, but nothing comparable the last five years to the preceding. It holds, therefore, in great vigour twelve years. This circumstance adds not a little to the 4s. per acre. But farther:

It is to be much questioned whether marle, in its best state, any where yields an increase of product equal to that which such a manuring of dung, as I have mentioned, will occasion. There are soils wherein it would undoubtedly beat the dung, if the latter was tried on the same; for instance, light sands. But that comparison would be useless; the dung is proposed as a succedaneum to those manures which cannot be had in any plenty: that is, for the use of farmers who have neither marle, chalk, or lime, viz. those in general who occupy loams and clays.

Upon *such soils* five manurings of my dung compost, each 20 loads, or 100 in the twenty years, will, I am confident, infinitely exceed the marle on any soil whatever. With proper management, of not cross-cropping, such a manuring will make a loam yield, upon an average of the twenty years, from five to six quarters per acre of all sorts of corn: which marle will never near equal in the best ten years of its twenty. Land so manured with dung wants no other manuring; but the finest marled lands require every now and then a manuring of dung, ashes, oil-cake, &c. &c. which, if it was added to the first expence, would raise it much; but

but the *benefit* is calculated on the supposition : indeed I know of no country where the farmers trust solely to their marle. The sheep-fold is another instance of advantage they have, which the dunged soil is not supposed to enjoy, because upon such soils the farms are, in general, too small for a fold.

It is from these considerations, or rather facts, that I venture to pronounce the method here proposed to be cheaper than even marle, which has always been reckoned the cheapest of all manures. But there remains another way to calculate it : I before supposed straw to be bought : but stubble is much cheaper, and to be had, in most places, in much greater quantities.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
100 loads of stubble, at 7 <i>s.</i> - -	35	0	0
Carting as before - - -	7	10	0
Mixing ditto - - - -	3	2	6
Re-carting ditto - - -	18	15	0
	£ 64	7	6

This does not amount to 1*s.* 9*d.* a load, notwithstanding the teams are charged at a hiring price. A farmer, I am confident, would manage to reduce this to 1*s.* 6*d.* But whether he did or not, it is plain the expence of the manuring is vastly reduced from the preceding calculation ; and, consequently, the remarks made on that, are much stronger with respect to this case.

I shall, in the next place, calculate the expence when the manure is made by fatting of hogs.

138 RURAL OECONOMY: OR,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
100 loads of stubble, as before - -	35	0	0
Carting 500 loads of earth to the hog yard, as before - - -	15	0	0
Mixing 1500 loads, at 1 <i>d.</i> - - -	6	5	0
Re-carting the compost on to the land, &c. as before - - -	37	10	0
	£	93	15 0

This is exactly 1*s.* 3*d.* per load, and the teams charged at the *hiring* price, as before. It is needless to remark, that the expence would, in practice, be much reduced. Twenty loads per acre of this excellent compost would cost no more than 25*s.* I may fairly venture to pronounce it the cheapest of all methods of manuring land.

It is to be remarked, that where young ling, fern, brakes, &c. &c. are to be procured in large quantities, they may be in part substituted in the room of stubble: but the latter deserves more account for its general plenty; and particularly as the method of converting it to any use is unknown, I apprehend, in three-fourths of the kingdom; in which parts the farmers would most readily sell it by the acre extremely cheap: an opportunity almost invaluable to those who have the sense and penetration to purchase all they can; and is, beyond a doubt, the quickest, and cheapest, and best method of improving poor soils, and carrying good ones to the highest point of fertility.

But for executing plans of this sort, great stocks of cattle are requisite; hence the truth of the remark I have so often made, that without plenty of cattle there can be no good husbandry. If a man comes to a farm much worn out and damaged by bad management, he ought certainly to convert

vert the chief of it to producing cabbages, turneps, carrots, potatoes, &c. &c. and as fast as he got any part of it by their means into good heart, to lay down large quantities with artificial grasses; by which means he will be able to keep great stocks of cattle; and this again will enable him profitably to purchase straw and stubble of his neighbours: a train of management that will inevitably bring all his farm into most excellent order and fertility; and whenever he thinks proper to sow corn, ensure him from one acre, as much as his predecessors gained from ten.

The bringing manures from neighbouring cities and towns, is an excellent custom; but, in respect of cheapness, is not to be named with that I have just sketched. Two shillings and six-pence a cart load, or five shillings a waggon load, are common prices of dung, &c. &c. And for foot, ashes, malt-dust, woollen rags, bones, &c. the price is exceedingly high: it is true, the quantity of the latter spread on an acre is small; but yet all of them are well known to be dear manures; and, at one mention, plainly more expensive than those which I have sketched. Hog dung, clear of all mixture, may be had for 1*s.* 6*d.* a load, by buying stubble, and as good as for 2*s.* 6*d.* bought in a town; besides all the expences of carriage.

From the considerations, therefore, which have occurred to me, as well as from my own practice, I have the greatest reason to believe that buying straw or stubble to litter great stocks of cattle, much the cheapest and most effectual way of manuring land.



E S S A Y V I I .

Of the comparative profit of cultivating different soils.

A Person that has a sum of money to dispose of, by throwing it into farming, has, surely, great reason to be very attentive to the soil on which he fixes; unless all soils, with equal management, are equally profitable; which can scarcely be conceived. I shall suppose, in the following enquiry, that the rent of every species of land is strictly fair, on an average value.

The variations of the fair rent of arable land may be limited, I think, between 1*s.* per acre, and 30 *s.* both which are, at least, much in extremes; but, in a more common way, the variations rise from 5 *s.* to 20 *s.*

Some peculiar spots may let for two, three, four, or five pounds per acre; but to take in such instances, would confound all the general utility of such an enquiry as this.

It is necessary, when we speak of the variations of produce, to suppose the husbandry *good, in a common way*; and equally so on all soils. Let us now state a comparison between land at 5 *s.* and land at 20 *s.*

In

142 RURAL OECONOMY: OR,

In a general way of speaking, I know of no soils inclinable to stiffness, that is, loams or clays, but what will yield more than 5*s.* per acre rent. Lands that let so low, are sands, or light heathy soils, and old improved moor lands. It will not be an unfair supposition, to state the average produce of such, as follows :

Of wheat one quarter and a half: but this grain is very seldom sown on such, unless greatly improved.

Of rye two quarters.

Of barley two quarters.

Of oats two quarters and a half.

Of turneps, crops to the value of 20*s.*

Of clover and rye-grass, ditto.

I suppose the management good ; at least such as is called so among common farmers ; but the soils not improved with any lasting expensive manure, as such improvement is always to be reckoned as rent.

The produce of arable land, of 20*s.* an acre rent, may be calculated as follows :

Of wheat three quarters and a half.

Of barley five quarters.

Of oats six quarters.

Of beans five quarters.

Turneps 3*l.*

Clover 3*l.*

But the difference between the products of these soils will not appear in a clear light, unless we state the expences and produce of each. I shall vary the prices of the operation of tillage, &c. wherever I think the difference of soil requires it.

Land

Land of 5 s. per acre.

First year turneps.

	<i>l.</i>	<i>s.</i>	<i>d.</i>	
Rent - - - -	0	5	0	
Tythe and town charges, at 8 s. in the pound - - -	0	2	0	<i>l. s. d.</i>
				0 7 0
Four ploughings, at 3 d. - - -	0	12	0	
Two harrowings - - - -	0	0	6	
Seed - - - -	0	0	6	
Sowing - - - -	0	0	3	
Twice hand-hoeing - - - -	0	6	0	
<i>£</i> 1 6 3				

Second year barley.

Rent, &c. - - - -	0	7	0
Three ploughings - - - -	0	9	0
Two harrowings - - - -	0	0	6
Seed, four bushels - - - -	0	8	0
Sowing - - - -	0	0	3
Mowing and harvesting - - - -	0	2	6
Thrashing two quarters, at 1 s. - - -	0	2	0
<i>£</i> 1 9 3			

Third year clover, &c.

Rent, &c. - - - -	0	7	0
Seed and sowing - - - -	0	5	0

Fourth year clover, &c.

Rent, &c. - - - -	0	7	0
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Carried over 3 14 6

Fifth

144 RURAL OECONOMY: OR,

l. s. d.
Brought over 3 14 6

Fifth year ditto.

Rent, &c. - - - - - 0 7 0

Sixth year wheat.

Rent, &c.	-	-	-	-	-	0	7	0
One ploughing	-	-	-	-	-	0	3	0
Three harrowings	-	-	-	-	-	0	9	0
Seed	-	-	-	-	-	0	10	0
Sowing	-	-	-	-	-	0	0	3
Reaping and harvesting	-	-	-	-	-	0	6	0
Thrashing one quarter and half, at 2 s.	-	-	-	-	-	0	3	0
						£ 1	18	3

£ 5 19 9

P R O D U C E,

First year turneps.

						l. s. d.
Value	-	-	-	-	-	1 0 0

Second year barley.

Two quarters, at 16 s.	-	-	-	-	1 12 0
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Third year clover, &c.

Value	-	-	-	-	-	1 0 0
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Carried over 3 12 0

Fourth

PRACTICAL ESSAYS. 145

l. s. d.
Brought over 3 12 0

Fourth year ditto.

Value - - - - - 1 0 0

Fifth year ditto.

Value - - - - - 1 0 0

Sixth year wheat.

One quarter and a half, at 40 s. - - 3 0 0

£ 8 12 0
Expences - - - - - 5 19 9

Profit in six years - - - 2 12 3

Which is per acre per annum - - 0 8 8½

Land of 20 s. per acre.

First year turneps.

	l. s. d.		l. s. d.
Rent - - - - -	1 0 0		
Tythe and town charges -	0 8 0		
	-----		1 8 0
Five ploughings, at 4 s. -	- - -		1 0 0
Three harrowings - - - -	- - -		0 1 0
Seed - - - - -	- - -		0 0 6
Sowing - - - - -	- - -		0 0 3
Twice hand-hoeing - - - -	- - -		0 7 0
	£ 2 16 9		

Carried over 2 16 9

L

Second

146 RURAL OECONOMY: OR,

l. s. d.
Brought over 2 16 9

Second year barley.

Rent, &c.	-	-	-	-	-	1	8	0
Three ploughings	-	-	-	-	-	0	12	0
Three harrowings	-	-	-	-	-	0	1	0
Seed	-	-	-	-	-	0	8	0
Sowing	-	-	-	-	-	0	0	3
Mowing and harvesting	-	-	-	-	-	0	3	0
Water-furrowing	-	-	-	-	-	0	0	6
Thrashing five quarters, at 1s.	-	-	-	-	-	0	5	0
£ 2 17 9								

Third year clover.

Rent, &c.	-	-	-	-	-	1	8	0
Seed	-	-	-	-	-	0	5	0
Sowing	-	-	-	-	-	0	0	3
£ 1 13 3								

Fourth year wheat.

Rent, &c.	-	-	-	-	-	1	8	0
One ploughing	-	-	-	-	-	0	4	0
Three harrowings	-	-	-	-	-	0	1	0
Seed	-	-	-	-	-	0	10	0
Sowing	-	-	-	-	-	0	0	3
Water-furrowing	-	-	-	-	-	0	0	9
Thistling	-	-	-	-	-	0	1	6
Reaping and harvesting	-	-	-	-	-	0	7	0
Thrashing three quarters and a half, at 2s.	-	-	-	-	-	0	7	0
£ 2 19 6								

Carried over £ 10 7 3

Fifth

PRACTICAL ESSAYS. 147

l. s. d.
Brought over 10 7 3

Fifth year beans.

Rent, &c.	-	-	-	-	-	1	8	0
Two ploughings	-	-	-	-	-	0	8	0
Seed two bushels	-	-	-	-	-	0	8	0
Sowing	-	-	-	-	-	0	0	6
Twice hand-hoeing	-	-	-	-	-	0	12	0
Thrice horse-hoeing	-	-	-	-	-	0	3	0
Reaping and harvesting	-	-	-	-	-	0	8	0
Thrashing five quarters, at 1s.	-	-	-	-	-	0	5	0
£ 3 12 6								

Sixth year oats.

Rent, &c.	-	-	-	-	-	1	8	0
One ploughing	-	-	-	-	-	0	4	0
Two harrowings	-	-	-	-	-	0	0	8
Seed four bushels	-	-	-	-	-	0	6	0
Sowing	-	-	-	-	-	0	0	3
Mowing and harvesting	-	-	-	-	-	0	3	0
Thrashing, at 1s.	-	-	-	-	-	0	6	0
£ 2 7 11								

£ 16 7 8

PRODUCE.

First year turneps.

Value	-	-	-	-	-	3	0	0
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Second year barley.

Five quarters, at 16s.	-	-	-	-	-	4	0	0
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Carried over 7 0 0

L 2

Third

148 RURAL OECONOMY: OR,

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	7	0	0

Third year clover.

Value	-	-	-	-	-	3	0	0
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Fourth year wheat.

Three quarters and a half, at 40 s.	7	0	0
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Fifth year beans.

Five quarters, at 16 s.	-	-	4	10	0
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Sixth year oats.

Six quarters, at 12 s.	-	-	-	3	12	0
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					<u>£</u>	25	2	0
Expences	-	-	-	-	-	16	7	8

Profit in six years	-	-	-	8	14	4
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Which is per acre per annum	-	-	1	9	0½
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Profit by the land of 20 s. per acre	1	9	0½
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Ditto by that of 5 s. per acre	-	-	0	8	8½
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The former superior by	-	-	1	0	4
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This superiority of the rich land is very great; and yet I believe, upon the whole, the account favours the poor land the most. No seasons affect, in any considerable degree, the rich soil; whereas unfavourable ones often reduce the product of the other to nothing. Another circumstance of very great

great consequence is, that the good land from the best of farmers wants no extra improvement; whereas the poor soil will, by such an one, be improved at a great expence. Farther, the latter cannot, by any human power, be made to equal the former: that is, the rich soil will for ever keep a-head of the other, whatever equal sums be expended upon them; and it is capable of being advanced (even proportionably) much farther than the other.

Profit per annum on 500 acres of					
arable land, at 20 s.	-	-	-	726	0 0
Ditto the 5 s.	-	-	-	217	13 4
				£ 508 6 8	

Thus are there above 500 *l.* difference between farming 500 acres of land at 5 s. an acre and 500 at 20 s. So little should we be deceived with the idea of land being *cheap*, because the rent is *low*. The farmers have a proverb among them, which seems a very true one; *A man cannot pay too much for good land, nor too little for bad.*

Let us next sketch an account of a middling soil, a loam or a wet clay of 10 s. an acre: these kinds of land are extremely common in most parts of the kingdom; the red brick earth soils, the wet gravels, and chalks, many of the lime-stone soils, all let, upon average, at 10 s. an acre, and bear much the same crops in point of value. I should calculate them as follows:

Of wheat two quarters and a half.
 Of barley three quarters (after a fallow).
 Of oats three quarters and a half (after a crop).
 Of pease two quarters and a half.

L 3

Clover

150 RURAL OECONOMY: OR,

Clover 2 l.

Turneps 1 l. 15 s. on such as are somewhat dry.

A common method in many tracts of country of managing these soils is, to throw them into thirds; one fallow, one wheat, and one barley, oats, and pease.

Another course is in fifths; one fallow, one wheat, one barley, one clover, and one oats. As the latter is more favourable I think than the former, I shall suppose it the medium, and calculate it.

First year fallow.

	<i>l.</i>	<i>s.</i>	<i>d.</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>
Rent - - -	0	10	0				
Tythe and town charges	0	4	0				
					0	14	0
Five ploughings - - -	-	-	-		1	0	0
Water-furrowing - - -	-	-	-		0	0	6
£	1	14	6				

Second year barley.

Rent, &c. - - - - -	0	14	0
One ploughing - - - - -	0	4	0
Two harrowings - - - - -	0	0	8
Seed - - - - -	0	8	0
Sowing - - - - -	0	0	3
Water-furrowing - - - - -	0	0	6
Mowing and harvesting - - - - -	0	3	0
Thrashing three quarters and a half	0	3	6
£	1	13	11

Carried over £ 3 8 5

Third

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l. s. d.
Brought over 3 8 5

Third year clover.

Rent, &c.	-	-	-	-	-	0	14	0
Seed	-	-	-	-	-	0	5	0
Sowing	-	-	-	-	-	0	0	3
						£	0	19 3

Fourth year wheat.

Rent, &c.	-	-	-	-	-	0	14	0
One ploughing	-	-	-	-	-	0	4	0
Seed	-	-	-	-	-	0	10	0
Sowing	-	-	-	-	-	0	0	3
Three harrowings	-	-	-	-	-	0	1	0
Water-furrowing	-	-	-	-	-	0	0	9
Thiftling	-	-	-	-	-	0	1	6
Reaping and harvesting	-	-	-	-	-	0	7	0
Thrashing two quarters and a half	-	-	-	-	-	0	5	0
						£	2	3 6

Fifth year oats.

Rent, &c.	-	-	-	-	-	0	14	0
Two ploughings	-	-	-	-	-	0	8	0
Two harrowings	-	-	-	-	-	0	0	8
Seed	-	-	-	-	-	0	6	0
Sowing	-	-	-	-	-	0	0	3
Mowing and harvesting	-	-	-	-	-	0	3	0
Thrashing	-	-	-	-	-	0	3	6
						£	1	15 5

£ 8 6 7

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PRODUCE.

Second year barley.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Three quarters and a half, at 16 <i>s.</i>	2	16	0

Third year clover.

Value	-	-	-	-	2	0	0
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Fourth year wheat.

Two quarters and a half	-	-	-	-	5	0	0
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Fifth year oats.

Three quarters and a half	-	-	-	-	2	2	0
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Expences	-	-	-	-	11	18	0
					8	6	7

Profit	-	-	-	-	£	3	11	5
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Which is per acre per annum	-	-	-	-	0	14	3 $\frac{1}{4}$
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If this calculation in any point fails, it is in the wheat crop. I know not whether it should be two quarters or two quarters and a half; perhaps the former. That would reduce the profit to 2 *l.* 11 *s.* 5 *d.* or per acre per annum 10 *s.* 3 $\frac{1}{4}$ *d.* however, to split the difference, which will, I believe, be nearest the mark, I shall call it 12 *s.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Annual profit on land of 20 <i>s.</i> an acre	-	-	-
Ditto on that of 10 <i>s.</i>	-	-	-
Superiority of the former	-	-	-

Annual

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Annual profit of that of 10 <i>s.</i> - -	0	12	0
Ditto on that of 5 <i>s.</i> - - - -	0	8	8½
Superiority of the former - - -	0	3	3½

These proportions shew, that the point in question is an important one, and much deserves the attention of all who have the offer of farms on different soils, and are in doubt about which to accept. There is a common notion current, that it matters not what land a man occupies, provided the rent is fair; but this idea is a mere error, and cannot fail of leading those who give ear to it into a dangerous mistake. We find, by these calculations, that the profit is much the greatest from the best land, notwithstanding the greatness of the rent. Soils that are hired, merely with a view to improvement, are not taken into the account, because the amount of the improvement must be divided into rent, which would be too complex and uncertain an affair: however, I may in general remark, that scarce any will be found so advantageous as rich land, whatever be the rent; unless it is some waste tracts of land truly rich, which is let very cheap from being waste. But such instances are too particular to found general conclusions upon.

Having given this slight calculation of the profit of three kinds of land, I shall, instead of extending them to greater varieties, offer a few general remarks on the subject, for it is by no means my intention to sift each part of it to the bottom, and to examine and explain every particular relating
to

to it: such a task, however useful it might be, is too extensive for the bounds of such an essay as this. I would aim at exciting the curiosity of my readers, and prevent their suffering vulgar notions and common maxims being the rule of their conduct, without a strict examination of their truth. In a word, my principal design in these sketches, is to start a few hints, and leave the reader to pursue, and adapt them to his particular use.

I began with explaining the idea I had of rent to be the commonly received fair terms usual in a country. Now there are many soils that carry such a rent, to the amount of from 9*s.* to 12*s.* per acre, that no one can deny being *worth* the sum, because they would, at any time, *let* for it. I mean cold, hungry, flat, wet soils, of whatever they may be composed. The lower sort of farmers fallow them for wheat, and then take a crop of oats, and fallow again; or use them in some such unprofitable course, as all that can, without improvement, be made of them. Such soils I should strenuously advise any man from hiring, however low the rent may be, unless *for improvement*. It is impossible to calculate the produce of such soils; scarce one season in twenty suits them: in wet years they are nothing but mud, and yield nothing but weeds: in dry ones, they bake with the sun after rain, so that the corn is bound into the ground; it is only middling years peculiarly favourable, that can permit these soils to bear a tolerable crop. Now such lands, notwithstanding the height of the rent, which arises chiefly from the ignorance of the neighbouring farmers, are so extremely perplexing to manage, so tedious in every operation, and so particularly *late*, that a man had better hang himself than have any thing to do with them.

The

The best soil I stated above, was of 20s. an acre; but I have known many tracts of country that would yield all the crops I there supposed, and let for 15s. or 16s. per acre; at which rent I need not remark they are particularly profitable.

It is a common notion, that great sums of money are alone to be made by farming open heathy countries; dry soils that let very low, where a man has a great breadth of ground, as the farmers call it, for a little money. And this opinion arises from seeing generally great farms on such soils, which can only be managed by people that have much money. Now great stocks are in all business attended with large profit, and must be so, or they could not exist. Thus the cause is mistaken for the effect. A man that is worth ten thousand pounds makes much money by farming a poor soil; but does any one suppose he would not do the same by farming a rich one? It is the great stocks, not the soil, that occasion such great profit. If the comparison is fairly made by a man worth 500l. fixing on land *truly* worth 5s. per acre, neither more nor less, and another worth the same sum, settling on a rich soil fairly worth 20s. neither more or less, and both equally good farmers for their respective soils, there cannot be the least shadow of a doubt but the latter in ten years, or at any other period, will be worth treble the money of the former.

Rich soils are commonly worse cultivated than poor ones, and, for this reason, they are oftener divided into small farms. A little farmer is every where a bad husbandman; he cannot afford to do well by his land: but a great one, having proportionably more money, we every where see to cultivate his soil better. The one keeps scarce any cattle; the other large stocks. Is it not therefore plain,

plain, that the common notion of the soil being good, will generally, among the common people, be the result, from large farmers being on it? We see this very strong in the case of single farms; they get a reputation among common farmers, almost entirely in proportion to the money made on them. If a man dies rich on a farm, that circumstance will alone let it at an advanced rate. If two or three men have failed in another, nobody will hire it; but if, accidentally, a good manager takes it at a lower rent, and makes much money, it quickly comes into reputation.

Farmers do not enough consider management and soil; they look only at the substance of those upon it, which is extremely deceitful, for that is totally the effect of good management. An excellent farmer comes upon a miserable soil, he grows rich; when he leaves his farm, an hundred fools are after it at once: he is succeeded by a sloven that is ruined, who thought to grow rich by merely possessing the same farm that another had made his fortune upon, without considering the vast distance between their methods of cultivation.

The great object is, that industrious men, who practise a spirited and accurate husbandry, should well know the most profitable soil they can fix on. Wherever they live, they will be good farmers, and make money; but surely it should be a great object with them to bestow their attention where they will be best paid for it. And that any one may venture to assure himself is upon the best natural soils: the black, rich, crumbly, dry, sound deep stapled clay, or stiff loam, the *putre solum*.



E S S A Y V I I I .

Of the management of the borders of arable fields.

THIS subject, like many others, may appear to be a matter of no great consequence at first view; but, upon a nearer examination, it will be found to deserve more attention than any writer upon agriculture has hitherto given it; for, to my present remembrance, I know not a page that ever was bestowed on it.

There are several ways of managing borders. *First*, they are, in some countries, reduced, by plowing into the very hedge, to nothing but a mere strip of briars and rubbish. *Secondly*, they are left of various breadths, from two yards to six, over-run with whatever spontaneous rubbish happens to arise; with heaps of old ditch earth about them, or holes, scars, and inequalities made by carting the ditch earth away. *Thirdly*, they are kept in order sufficient for mowing the grass on them, whenever the field is under corn, or feeding it when fallow. *Fourthly*, they are plowed up regularly, and kept, when the fields are under corn, planted with potatoes. *Fifthly*, they are dug away
eighteen

eighteen inches or two feet below the surface of the field, and carted on to the land, either alone, or mixed with dung.

There may be other methods practised in countries, of whose husbandry I am ignorant ; but I believe these are the chief.

The first way, that of plowing into the hedge, is open to many objections. A farmer cannot take a view of his corn for any purpose whatever, without riding or walking through it, which cannot be done without damaging it ; and as there are generally many trees in hedges, the corn sown under, or so near them, never pays for half the seed, or other expences ; infomuch, that there is not a more common sight than large parcels of land around a field where the crop is quite sickly, flinted and yellow, while the middle of the same field shall be in perfect health and vigour. That this is a pernicious practice, is evident from the very mention of it ; nothing, I should apprehend, could induce a farmer to it, but finding his borders in so bad a condition, that they would not pay for mowing, and leaving in grass, and therefore thought it better to plow and sow them with corn : but the scantiness and poverty of the crops, one would apprehend, are sufficient to open his eyes in a very few years. The contrary is, however, the case, for most of them persist in, as well as begin the practice.

The second method, or rather *confusion*, the leaving the borders of different breadths, and overrun with whatever rubbish happens to arise, is a most execrable practice : if such farmers were capable of calculating their loss, I think they would avoid so ruinous a custom. It is in part owing to stipulations in leases, which forbid their plowing
up

up borders; so, as they cannot act like the first class of slovens, they are content to remain in a yet worse predicament. Such borders contain, a whole farm taken together, many acres, which are thus left absolutely unprofitable. They cannot, upon a low computation, be reckoned at less than seven acres in one hundred, unless the fields are remarkable large: when they are small, for instance, four, five, six, seven, or eight aced pieces, it amounts to much more. I know several farms where (ditches included) the unprofitable land has amounted to a fifth of the whole. What an immense loss is this, and upon soils that let at from 10 s. to 20 s. per acre. Suppose it only seven acres in one hundred, it is a most infatuated conduct to pay rent and town charges, and tythe, if levied by the acre, for land which yields scarcely sixpence return. Such a deduction from the quantity of profitable land raises the rent of the rest prodigiously. There are many farmers who would reject a farm upon differing 1 s. per acre in rent, who would immediately take another, wherein they should, in this manner, tax *themselves* 1 s. 6 d. or 2 s.

Borders left in this slovenly manner, have all the disadvantages of none at all; that is, of the error I mentioned first, the plowing close to the hedge: for they are so over-run with hills, and so broken and unequal in the surface, or have so many briars about them, that a man can as well ride or walk on the top of a hedge as through them; so that with all this breadth of waste ground, he has not the power of going round his corn, for whatever purpose he may want it, but must make a path through it as well as the first set I mentioned.

It may be thought that the spontaneous rubbish pays something in firing; but such produce is scarcely

scarcely sufficient to pay the cutting, for it chiefly consists in briars and brambles, and such stuff: and, indeed, the common practice of the farmers proves this, for not one in ten ever cuts them at all.

If it be asked why they do not convert them into profitable land, one can only attribute the neglect to poverty or mistaken œconomy. *Cutting* them up will not do, they must be grubbed up, holes must be filled, hills carted on to the land, then the whole well plowed, or, if there are many scattered trees, dug, and, perhaps, hay-seeds at last to be sown. What an immense undertaking must all this appear to a man, who, for forty years, has never stirred out of a beaten track, but dreamt on in the sleep of his forefathers! The work is much too great to be thought of.

The third way of managing borders, that of keeping them in order good enough for mowing when the fields are under corn or feeding, when fallowed, is an extreme good one, for, by means of such neat husband-like conduct, no land is lost; the border pays as well as the rest of the field: the farmer can at any time walk about his fields with pleasure, and without any damage, except for about a month before the mowing, and then without doing any mischief comparable to making paths through his corn; besides, the season of full-aged grass is so short, that the time is not of consequence. The beauty of fields (I speak to gentlemen) is much greater; and the whole business receives a convenience and agreeableness which are very pleasing, at the same time that every point of profit is œconomically attended to.

The

The fourth method of planting the borders with potatoes, is by no means a despicable one; but the propriety of it depends, in a good measure, on the nature of the spot. It is most advantageous in newly grubbed-up borders, that have been for many years over-run with shrubby wood and other rubbish; such land yielding very considerable crops, is applied, in this culture, to good profit; but at the same time I must be allowed to remark, that it should only be considered as a preparation for laying them down to grass, as a constant practice of it is not so eligible as even grass walks round a field, that admit either feeding or mowing; besides, the trouble of planting, &c. is too great to be executed effectually in any great extent by common farmers. This method is, however, infinitely beyond that of plowing every year to the hedge, and sowing corn where none will be produced; or to the execrable practice of leaving the borders in the wild spontaneous state, that of mere unprofitable land.

The fifth way of digging the soil away to some depth, and carting it on to the land, is an excellent one, and of very great utility in many respects. It must be remarked by all that concern themselves in husbandry, that the sides of a field, called borders and head-lands, are, where no alteration has been made for many years, vastly higher than the level of the field; this is owing to the turning of the plough, which, in the course of a number of years, leaves a rising of moulds that occasions this inequality of surface. In fields that are not flat, another reason co-operates, which is, the washings of the higher parts accumulating with bad husbandmen, and, by degrees, grow into high ridges of soil.

M

These

These risings of the border and headlands are very inconvenient, and occasion much useless expence; for in all soils, at all inclining to wetness, double water-furrows must be made parallel even with the ditch, and at but a little distance from it: this is totally owing to the artificial height of the land, which renders the ditch unable to perform its office of being the grand water-furrow to every field that has a descent. The use, therefore, of digging away these high lands is manifest, as the fields receive a thorough draining by means of the ditches; and, consequently, no more water-furrows requisite than what the general flatness of the land makes necessary. The quantity of earth that arises, and which, in unlevel fields, may, from its situation, be supposed particularly rich, is also very great; and, either mixed with dung, or carried on alone, proves a source of much rich manuring.

Of these methods, the keeping them smooth and under grass, and the digging them away, are the best management: but I must propose an union between these two, to form one complete; which is, that the whole border and head-land be dug quite away, and carted on to the land; and to such a depth, that the water may every where (if the land has a descent) run into the ditch without obstruction. After this they should be laid down carefully to grass, and so kept. If in the course of twenty or thirty years they rise again from the causes I before mentioned, the operation should be repeated.

This is a system of managing borders which, I apprehend, will be found of no trifling use: a very considerable saving of land will be made, which, in other methods, is mere waste. The fields

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fields will be much easier drained, and great quantities of excellent manure raised; all points of much importance. If the earth is mixed with dung, it will be so much the better.

A very little observation will, I apprehend, make these remarks sufficiently evident, and shew the practices here recommended to be much superior to the common ones among farmers.

THE ART OF WRITING

It is not enough to have a subject, and great
care must be taken to choose the subject, all points
of which importance. If the subject is marked with
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ESSAY IX.

Of the New Husbandry.

THERE is no trifling utility in considering an object in every light in which it can be placed. *The range of experiment*, is certainly the grand range of philosophy: but in all enquiries something is requisite, even beyond individual experiments. It may be attended, perhaps, with some use to consider the drill husbandry, in the stile of reason, a little independent of particular trials; but I should remark, that I made no slight number of these particular trials; and that I am, in some respects, not the less qualified for offering mere *observations*.

If any misfortune attends the experiments made by individuals, it is the contraction of their consequences. Suppose a gentleman amuses himself with agriculture, and forms a great number of experiments, it is much to be questioned whether his trials are conducted on more than one kind of soil; perhaps two or three: but they are prosecuted under circumstances, respecting ingenuity, penetration, courage, prudence, wealth, implements, sensible servants, &c. &c. which are absolutely peculiar to the individual; perhaps the overturning one of these particulars destroys the whole set of experiments.

riments. A man, not possessed of *all* those advantages, cannot form experiments of equal authority with another who amply possesses them. No trial can be made that is useless; but what a vast difference in the utility! In a word, the conclusions to be drawn from single experiments, admit of infinite variety; and those which are deduced from connected chains of them, with all their authority, prove no more than what concerns one soil, and, perhaps, given modes of culture.

It is very far from my meaning to hint any thing against the propriety, or even the necessity, of multiplying experiments: I am perfectly sensible that nothing can be substituted in their room; all the reasoning upon earth, without them, would be of no avail; and they, in a certain variety, are sufficient to give the force of absolute fact to every point of natural philosophy. All I would venture to insinuate is, that general reasoning and remarks may be of some use in those points, which experiment do not reach, which are numerous.

It is so many years since the first notion of sowing corn, &c. in rows was first started, that writers do not even pretend to decide who was the inventor; but certain it is, that the use of the drill plough never made any progress worth mentioning, till Mr. Tull, perhaps *originally* (though not very likely in a man of his reading) *again invented it*. He practised it upon an extent of ground far beyond that of any person preceding him. His success, unhappily, is not so clearly to be determined even in the minuteness of a voluminous work. That he was a prejudiced writer, no one can deny; for, from his work, one would be almost led to imagine the old husbandry totally inadequate to the wants of mankind; and that the human species, notwithstanding all the attention given to

cultivating the soil, must be in perpetual danger of starving.

The spirit of drilling died with Mr. Tull, and was not again put in motion till within a few years; perhaps the dispute between the value of the old and new methods never occasioned half the enquiry it has done within these ten years. Several courses of experiments have been published, and some of them very ingeniously conducted; but yet the point remains absolutely in dispute. If this mode of sowing be really superior to that in common use, why is it not more spiritedly promoted? What are the circumstances that impede its progress? These questions, though of importance, are not easily decided. Another, which is of equal consequence, is, the effect of the drill culture *in general*?

A very little attention will discover the causes of the drill husbandry making so slow a progress, even under the supposition of all the merit which the most sanguine of its pursuers assert it to possess. In the first place, the principal reason, of all others, is the insufficiency, real or imaginary, of all the drill ploughs, hitherto invented, in performing the complex offices which are requisite in such a machine. For, it is to be observed, the ploughs of this sort which have been offered to the world, how much soever they may have been cried up by their inventors and particular friends, have been all as much depreciated by others. This, to men of sense, spirit, and general knowledge, may be no matter, because they no sooner meet with difficulties, but they remove them; but to others, who creep on in a more humble stile, and who are necessarily ten times as numerous, besides the whole body of *common* farmers, such dif-

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ficulties are either in reality or appearance insurmountable.

The common plough varies prodigiously in different countries; but yet it every where agrees in the great points which farmers expect from it. There is some degree of complexity in the operations which it performs; and yet such a simplicity, as to be with great ease familiar to the stupidest country clown. It is every where strong enough to bear the hardest usage, firm and compact in all its parts, and every where to be repaired without trouble. The variations in the merit of ploughs are found in none of these points; only in deviations from mathematical principles, in the construction respecting the strength of the draught. If horses or oxen enough are put to them, all ploughs answer their purposes; and hence the grand difference found in them lies in the number of draught cattle used, which varies in almost every county.

Suppose, on the contrary, that the common plough was so complex in its powers, as to render simplicity extremely difficult to be preserved in its construction; that the variety of its parts was so great, and had so little firmness and connection in them, as to render the whole machine unavoidably weak; that the same objections, which rendered it so complex and so weak, made it likewise difficult and expensive to repair; without multiplying these suppositions to a tenth of the extent to which they might be carried, we may venture to determine, that husbandry would be at once reduced to infancy, if the common plough remained under these three disadvantages.

Now the drill plough is attended with many other disadvantages, for it is of an high price, very difficult to procure, and, notwithstanding the
variety

variety invented, not one of such particular excellency as to be allowed to exceed the rest. In such a situation, is it possible that drilling can flourish? Let us consider the powers which a drill must possess, or the cultivator have more than one.

There is no reason to limit the number of rows sown at a time; the experiments on this point by no means decide that two rows, with intervals, are better than four. I have myself found that three are better than two, in many instances; and, if drilling in equally distant rows, be practised, the more sown at a time, the cheaper and better it is. However, we will suppose the number to be three, and the distances from each to vary from six inches to two feet.

Various seeds require various depths of sowing: turnep seed, lucerne, sainfoin, &c. &c. must not be thrown as deep into the earth as beans. Hence the necessity of the drill's shedding the seed to various depths, from half an inch to five inches.

The mention of the above seeds reminds us of their size. The apparatus for sowing turneps must be very different from that which drops beans, so that there must be varieties in the parts answerable to such effects.

A coulter to each share is requisite to all drill ploughs; for, however fine the soil may be, yet little obstructions will happen, which should be thrown aside, and not suffered to choak up the shares. It is also necessary to have a harrow, or harrows, or teeth, or some contrivance for covering the seeds, which should also act in proportion to the depth at which the seed is to be laid into the ground.

Thus a drill plough must be able to sow any kind of seed, from lucerne and turneps to beans.

It

It must sow one row; two rows at six inches asunder; two rows at one foot asunder; two rows at eighteen inches asunder; two rows at two feet asunder; three rows at six inches; three rows at eighteen inches. It must shed the seed in these varieties from half an inch to five inches deep. And the coulter and harrows must be contrived to vary with the distance and depth of the rows.

I will not say such a machine *cannot* be invented, which is strong enough for the countrymen's use, but I firmly believe the impossibility, without rendering it so heavy as to require several horses to draw it; which, in a hurrying seed-time, is a very great objection. All the drill ploughs I have seen are so weak, that I am confident they would not live a week in constant use, to take the chance of the servants and labourers roughness, like the other machines of a farm. Common ploughs and harrows the fellows tumble about in so violent a manner, that, if they were not strength itself, they would be perpetually dropping in pieces. In drawing such instruments into the field, the men generally mount their horses, and drag the things after them. In passing gateways, they seldom think of what is behind them; which, twenty to one, but they draw against the gate-post. It is, however, of little consequence, for the implements are strong enough to bear such usage: but suppose a drill plough treated in the same manner! where is one to be found, with half the powers that I have described, that would not be shattered in pieces?

In a word, if a drill be not strong enough to bear all such rough handling, it may at once be pronounced good for nothing. Whenever one is offered for examination, the first trial I should
make

make of it, would be to whirl it against the ground with all the force I was master of. If it did not stand this, perfectly sound, I should at once pronounce it not worth a groat. Next, I would order my man to bring out a pair of horses, and lead it through the farm, and, if chance did not wrench it against a gate-post, it should receive the blow with design. Such a conduct might be thought at first to be the effect of prejudice, and a mistaken idea; but I am confident that those who have practised drilling upon any scale not very small, and ever let their drill ploughs be used out of their sight, must have *experienced* the necessity of such an examination. It is equally necessary with the performance of any operation that is required: it may as well shed a bushel of seed where it should drop but a peck, as not to be strong enough to bear such treatment.

All the powers I above described are absolutely requisite to be possessed, in some machine or other, by those who would practise drilling on an extensive scale. If they cannot be comprised in one, they must be divided, and no more given to one plough than is consistent with a degree of strength equal to that of the common plough: but this renders a set of drilling machines very expensive, equal, at least, to the sum with which a labourer would stock a little farm. With such expensive implements, it would be no wonder that drilling should not flourish.

I have not seen a drill plough that possesses the powers here described, without being weak to a degree of ridicule. The others I have viewed have been wanting in many material points; and *all* so weak, that with the common usage of farming

ing implements, they would presently be shattered to pieces.

It is much to be regretted, that the Society for the Encouragement of Arts, &c. have given over their premiums for a drill plough; it is a publick misfortune, if they think such as are hitherto invented, answerable to the wished-for end.

The drill ploughs yet discovered, are either much wanting in some necessary powers, or so weak and complex, as to be totally useless in a countryman's hands; and besides, these objections are not only very expensive, but, what is worse, difficult to be procured. In such a predicament, who can wonder that this mode of culture should be yet very confined! It is much to be questioned, whether there are annually fifty acres of drilled corn in the whole island of Great-Britain. While the implements with which it is performed remain so extremely imperfect, it is impossible this husbandry should spread; and let me remark, that no gentleman of small fortune, who applies to agriculture as a trade, can, with any tolerable prudence, enter into a practice (on a large scale) the execution of which is so full of difficulties, and the profit so very equivocal. Small trials are equally useful to the publick, and much safer to the individual. But it is not the want of a good drill plough alone that prevents the progress of this mode of sowing, other reasons yet remain to be mentioned.

A method of culture, that will not do for a large extent of ground, is undoubtedly good for nothing, respecting general utility. Now there appears to be a difficulty in drilling, which, though I never practised it to near such an extent, I think is an objection of no trifling consequence. Suppose a man
sows

sows annually two or three hundred acres of barley and oats, and that he is situated either in a clay soil, or a stiff or moist loam. Now those who are the least acquainted with the nature of such soils, must know that the best common husbandry, hitherto discovered for them, is to sow the spring corn upon a summer fallow on one earth; by which means they are able to take the advantage of the first dry season in the spring to get their seed into the ground: this ensures an early spring sowing, which is almost sufficient to counterbalance every other advantage. The success met with in this conduct, proves the justness of the practice; for, in many countries where this method is pursued, they gain, at an average, six, and even seven, quarters per acre of barley and oats.

Now let us consider the application of the drill culture to such a point. The soil, notwithstanding the preceding summer fallow, is by no means in a state for drilling upon one earth, it must be stirred three times, consequently three dry seasons are requisite instead of one. As far as reason can carry a man in matters of agriculture, this alone condemns the practice, without one further consideration. He who gives his barley land three spring ploughings, must sow late; and, upon wet soils, *very* late; which is the most pernicious of all evils. But farther:

The land, notwithstanding the ploughings, must be well harrowed to prepare it for the drill; so that the mere sowing requires a horse, or, perhaps, two or three extraordinary; that is, it stops a plough when a good farmer would not let a pair of horses at a guinea a day; and this only with one drill plough: but how many are requisite for sowing one or two hundred acres? The land must
first

first receive its tillage, and then be drilled. Now, in many millions of acres, a very heavy shower of rain between those operations, would render another ploughing and harrowing necessary, with time to dry. By midsummer the seed would be in the ground.

With any nice calculation, the delay occasioned by the use of the drill plough might be reduced, on any given number of acres, to some exactness; but that is by no means requisite, for accuracy in such a point is useless, because it depends on seasons, not the minuteness of calculation. The great object in a spring sowing, on such soils, is to catch every dry time, and make the utmost use of it: a method that, at such a critical moment, requires extraordinary ploughings, and harrowings, or delay in sowing, is far inferior to every other, more compendious in its principles.

This criticalness of season is a new proof of the necessity of excellent machines: if a drill plough was to fail or break in the midst of a dry barley sowing, what delay and vexation!

I apprehend these ideas will appear improper only to those who have no experience of the nature of wet soils. Such are absolutely improper for drilling those vegetables that require an early spring sowing. However well such land may have been summer fallowed, however dry it may have been laid up during the winter, yet in the spring it is found sodden, and beaten down with winter rains; when plowed up (unless after a long and dry season that has mellowed it as deep as the plough goes) it rises in such an unpulverised state, that however fit it may be for harrowing in broadcast corn, either is not in a condition for a drill to work, or
all

all the authors who have wrote on the New Husbandry, require a much greater fineness of soil than is really necessary. I could never, in the little experience I have had of drilling, find these unkindly soils fit for the drill plough with only one stirring. I have often fallowed land for barley during a year and half, and yet found that three spring ploughings were necessary to gain any degree of fineness; even a sufficiency to make common farmers allow the soil was in order for clover seed. Nor could I ever get three earths given, and proper harrowings, &c. and sow in April, unless some other part of the business was neglected. It will always be May before the barley is sown. But I here speak only of these cold, flat, wet soils. All this may appear very strange to those who have only farmed light, dry, sound soils, that will admit ploughing all winter.

The utter impropriety of drilling such wet soils in the spring, brings on the necessity of never drilling them with any thing but wheat, as they are too stiff and wet for the midsummer crop, turneps. And this necessity is open to many objections. In the first place, many of the later writers on the New Husbandry assert, that this constant drilling with wheat is not so profitable as a change of crops; but whether it is or not, we certainly may pronounce it bad husbandry to have all the corn of a farm to sow at one season; for although the autumn sowing is by no means so ticklish as that of spring, yet it would be extremely dangerous to have a great breadth of ground to drill at once; and the number of draught cattle must be extravagantly great, as nine-tenths of their year's work would be to execute in a month's time. It does not require much reasoning
to

to prove that such a system cannot possibly be equal to a variety of broad-cast crops.

Another circumstance not to be overlooked, respecting the practice of the New Husbandry, is the constant attention it requires: a farmer that sows one hundred acres of broad-cast wheat, as soon as the land is water-furrowed, locks up the fields, and has nothing more to do with them till harvest; his attention is then employed about something else, without being called back perpetually to crops which are never done with. The operations of sowing and covering the seed in the broad-cast method, are very compendious, much land is finished in a little time, and no unusual attention required; whereas, in the drill method, the farmer should attend particularly to the drill plough, to see that nothing is out of order, (I am supposing an excellent plough invented); that no more or less seed be shed than is requisite, and that the plough does not move on after it is empty. Whatever perfection the drill plough is carried to, he is an imprudent farmer that does not himself attend it constantly.

When the sowing is finished, the drilled fields, like the rest, require to be well water-furrowed; but in this circumstance, as in many others, a disadvantage lies on the side of the corn in rows. Some writers recommend a horse-hoeing to be given before the depth of the winter; others assert it to be better to delay it till the first dry season in spring. Every horse-hoeing almost fills up all the water-furrows, consequently they must all be opened afresh, which is an expence; and, what is worse, an *attention* must be given to it, whatever other business requires the men. Now I have not, in any book of husbandry that treats of the drill culture,

culture, met with this remark, or any hint concerning such an operation in the register of experiments published, which looks as if the flat, wet soil had never been tried : for whatever way the seed is sown on such land, the crop will depend almost as much on the number, depth, and goodness of the water-furrows, as on the seed or soil itself ; and in this point the expence on drilling is near double that of the broad-cast crop, and in some instances nearly treble.

When the field is drilled and water-furrowed, then comes a succession of labour, attention, and expence, until harvest, in horse-hoeings, hand-hoeings, and weedings, and this throughout the busiest time of the year, in hay-time and the turnep-hoeing season. Now I readily grant that a crop may easily repay all labour of this sort, and with good advantage, but yet the farmer must give uncommon attention to all these operations, which is a burden perhaps as great as the expence, for the number of hands requisite is very considerable, and they must be procured at all events ; which is but another word for saying, that the trouble and expence of getting them are immense.

Turneps are very commonly cultivated, and universally hoed in several counties, by people who make it their particular business, holding to it even through harvest time ; and yet many a farmer that happens to sow twenty acres more than usual, finds the trouble of getting them well hoed in time, very great. And this universal with all articles of labour that employ the men only at particular seasons, and not the year through ; which circumstance I take to be another objection to drilling ever becoming common.

That mode of conducting a farm requires, during summer, a most disproportioned number of hands to those employed in winter, infinitely beyond the disproportion of the old husbandry, which is but trifling. The vulgar complaints of a want of people in different parts of the kingdom, I take to be of no account, except for particular seasons. Let a man's demand for hands be ever so great, provided it be for regular employment the year round, he will, I am confident, find no difficulty in satisfying it; but when, as with the drill culture, five times as many are requisite in summer (the general time of a hurry in business) as are wanting in winter, the inevitable consequence must be either the work's going undone, or the expence extravagant. The evil may not have been felt in the drilled crops that a gentleman amuses himself with in his experiment field; but when they are multiplied to some hundreds of acres, the case is very different: both the inconvenience and the expence would then be extremely great.

There is one principle, real or imaginary, of the New Husbandry, which appears to me to be particularly pernicious, and that is the idea of the inutility of manures; corresponding with it is the practice of drilling the land every year with wheat, a practice that has been warmly asserted to be superior to all other methods of culture. I have endeavoured, in the preceding essays, to raise other ideas of the consequence of manures, and to shew that the very foundation of all good husbandry, is the keeping great stocks of cattle, for the sake of raising a vast quantity of dung. Now the rejection of all this in drilling, I must consider as a very absurd phantasy, rather than the clear effect of unprejudiced experience; a maxim of pernicious tendency, that can lead to nothing but error.

However,

However, it seems to have been coupled with the practice of successive crops of wheat, with much art; for if a farm is so cultivated, from whence can manure arise? The quantity of straw is a mere trifle from drilled corn; and straw is a matter of great consequence in the raising manure. I have more than once recommended the purchasing a quantity of straw or stubble, and to convert it into manure by large stocks of cattle fed on vegetables raised on purpose; but this system of drilling wheat, banishes every thing of this sort; and, I will venture to assert, will never be found, in any soil under heaven, equal to twenty spirited and judicious variations in the common husbandry.

The capital crops of corn that in one year pay the expences of many, are only to be gained by means of rich manuring; and the peculiar benefit of such husbandry, is the vast profit attending the crops that yield nothing but the food of cattle, which pay the farmer equally well, and, in many cases, vastly better than the richest ones of corn: and in this husbandry, every part of the farm being under crops of various sorts, that require very different treatment, much fewer horses or oxen are necessary for its culture, than if it was all under one grain; and, at the same time, the labour of such a farm is so equally divided, that no more is wanting at one time of the year than another; consequently there is always a certainty of labour, and at a fair price. I know not how to strain my imagination so far, as to conceive greater benefits flowing from the contraries of these practices.

There appears, upon the whole, many reasons for thinking that the New Husbandry can never

make any great progress; and also for supposing that there is no very great reason to wish it should, especially upon the system of successive crops of the same grain.

If, however, we reverse the medal, and confine the drill culture to certain plants peculiarly adapted to it, we shall find much to commend; and in such articles of cultivation may be included all crops in rows, although transplanted—to instance the following.

Beans succeed admirably in it, and excel the crops in the broad-cast way prodigiously; and this I think is quite consistent with reason, for the stalks are so strong, that they are never beat down, nor even bent much, so that the horse-hoeing is performed without any obstruction, and with great effect. This vegetable is likewise of a ravenous nature, the roots very strong and penetrating, so that banking them up, by plowing between the rows, increases the quantity of their food with a much greater effect than with tenderer and weaker vegetables, whose roots have not the like power of searching for and seizing their nourishment.

Turneps are likewise cultivated with much profit in the drill method; but we should remark, not with such superiority over the broad-cast mode, as with beans. There is reason to believe the broad-cast will equal, and sometimes even exceed the drills; but numerous experiments have not yet been laid before the public, sufficiently to decide this point in a clear manner. In grounds inclinable to moisture, wherein it is an advantage to have the turneps in rows on the crowns of ridges, the drill method must far exceed the broad-cast. The observations on the lux-
uriance

uriance of beans are applicable to this root, which renders it profitable to cultivate in rows.

Cabbages cannot be compared in promiscuous culture, either to that of being drilled where they are to remain, or to being transplanted in rows. This is a much more ravenous and luxuriant feeder than either beans or turneps; it will grow to a size proportioned to the richness of the soil, and will succeed even in a dung-hill: the vast strength of the roots is admirably adapted to penetrate all around, and feed upon the fresh moulds thrown to them in horse-hoeing. I have no conception that hand-hoeing can ever equal, to such a vegetable, the power of horse-hoeing.

I do not include carrots and parsnips in this list, because there are no experiments extant of sufficient authority to decide their being better in the drill method, than in the broad-cast.

Lucerne, though cultivated in numerous methods to uncommon profit, I apprehend will never be found (duration included) to answer in the broad-cast mode, near so well as in drilling and transplanting. The accurate attention which is given to crops in rows, in clearing them most perfectly from weeds, and keeping the soil in a fine state of pulverization, cannot fail of having great effects upon a vegetable so tender, and yet so luxuriant, as lucerne. No plant is more injured by weeds, and bad management in general; nor any that feeds with greater luxuriance, when managed with care and spirit.

Sainfoin, there is reason to believe, would repay as much attention as is given to lucerne; but it being a much hardier vegetable, it suc-

ceeds extremely well under common management, which has prevented its culture upon a more expensive plan.

These vegetables, and perhaps a few others of which I have not had experience, there is little doubt will succeed better under the New Husbandry than the Old; whereas wheat, barley, oats, and pease, are in their nature contrary, and have many circumstances attending them which render drilling and horse-hoeing inconvenient, and not of much use. And this should moderate the fiery *exclusive* advocates for both, and induce them to allow, that because drilling is in many cases an admirable practice, that therefore it ought totally to be received, in exclusion of every thing common. Cultivating perennials in rows, and making drilled annuals, fallow crops, or a preparation for broad-cast corn, seems to be much the most adviseable conduct, as it answers most of the objections which lie against the drill, upon a very large scale. Not, however, that I presumed to offer reasoning upon a point that experiment can alone determine, without one circumstance to defend me;—such a train of experiments as can be taken for a guide in considering the New Husbandry at large, and supposed to be extended over a whole country, is not likely to be made soon; and as to those which a gentleman may make for his amusement, viz. ten or twenty acres, it is much easier to multiply the result upon paper to one thousand acres, than to extend it in reality. Perhaps he drills ten acres of wheat, and finds it to yield such a profit. Does it, therefore, follow that five hundred should do the same? Nothing farther. In ten acres no inconveniences of labour

hour may be met with, nor any extra horses kept ; but these circumstances, in five hundred acres, would alone overturn, perhaps, half the profit. It is therefore in default of *experiment*, that I venture to offer *reasoning*. And as I profess particularly to treat in this sketch of œconomical matters, the idea I have ventured to explain, may, in that respect, be of no trifling utility to a young practitioner. Such a one will find the New Husbandry restrained to the culture of some vegetables, of excellent profit ; but enlarged, to include the total management of a farm, he would probably find it, if not his ruin, at least extremely unprofitable.

ESSAY



ESSAY X.

Of Experimental Agriculture.

FORMING experiments in husbandry is so much the taste of the present age, that perhaps it may not be amiss to offer a few remarks on the manner of conducting trials of this sort; and to enquire how far they are consistent with the economical management of a farm.

I shall in the first place venture to affirm, that not one comparative experiment in fifty is of pure, literal, and genuine authority; and yet comparative trials are, perhaps, the most useful of all. Suppose it be demanded which mode of sowing barley, the drill, or the broad-cast, be most beneficial? For this purpose, two spots of land of equal size, and of a most perfect quality in goodness, must be fixed on; the exposure, neighbourhood of ditches, trees, &c. &c. must be the same in both; the preceding crop, the preparatory culture, and every other circumstance. Now if the field be a large one, in all probability every one of these points will be unobserved, and the articles of culture, ploughing, harrowing, mowing, &c. &c. be performed at different times, and, consequently, the comparison

comparison unfair: for a farmer must have a vast number of men and horses indeed to carry on such an experiment in large. For these, and a thousand other reasons, two roods of land would, in many soils, be a much better comparison, than two pieces each of twenty acres. And this circumstance is extremely favourable to experimental husbandry, as it greatly lessens the trouble and expence.

If the degree of attention requisite for the conduct of experiments be considered, I apprehend it will be found that no man, however large his fortune, can be supposed willing to bestow the trouble and expence requisite for carrying on numerous experiments at large. I could easily make it appear, from uncontrovertible calculations, that ten thousand pounds a year might be expended, and with œconomy too, upon a space of ground small, beyond all common ideas, if totally thrown into experiments. It is therefore surely of consequence, that a gentleman of small fortune, who farms either for amusement or profit, does not unthinkingly draw himself into much greater expences than he can afford. If such an one conducts his agriculture with a prudent circumspection, he will confine his experiments to one field; or, if he has various soils, to several small fields; and let his trials be all in small; especially upon such matters as are either expensive, or of dubious result; this will guard him from being drawn into more costly trials than he means to afford; and the satisfaction of having them very correct and spirited, will make ample amends for the smallness of the number. But he must not expect that any thing of this sort, although upon a trifling scale of a few acres, can be conducted without a certain sum, and that not an inconsiderable one, annually appropriated

to it. For if the experiment field is to take the leavings of all regular expences, it is easy to guess in what manner the trials will be carried on.

If the experiments are numerous, and some of them of the expensive sort, an hundred pounds a year will not more than conduct those of six or eight acres of land; in some circumstances of number and kind, those of ten acres, and, perhaps, of twelve; from which it is evident that experimenting is no trifling expence; and as no employment or business in the country is so truly amusing, there certainly may be danger of a person, whose fortune is not considerable, running into a greater expence than he can afford; and there are no two things that abhor each other so much, as good husbandry and bad œconomy.

Experiments, in any number, can scarcely prove of much satisfaction, unless a number of hands proportioned to such employment be kept merely for it, and also horses and ploughs, &c. for in catching seasons, the experiments ought to have as much attention as the rest of the farm; but most people who are used to husbandry, especially such as make it their business, will not spare from their grand crops, teams and men, when much wanted. A field of fifty or a hundred acres of barley, that is sowing in a dubious season, will be attended to much more than a parcel of experiments, by practical farmers; I mean who have an eye to profit; but, at the same time, the experiments on barley require as quick an attention to the season, as a field ever so large, or else the trials will not be of that authority they ought; for this reason, it is much advisable to keep a plough sacred to the experiment field, and a man or two, or as many as the extent of ground requires: by this means the expence of such a field may be easily calculated,

lated, and the business of it carried on with due regularity and fairness. But whatever method is pursued, it is highly requisite to persons, whose fortunes are not considerable, to know their expences of this sort, with some accuracy; for the nature of them will otherwise occasion a greater increase than may be designed.

As far as a man's fortune will allow him to go, no amusement in the world equals the forming and conducting experiments in agriculture; to those, I mean, who have a taste for rural matters; nor can any *business*, however important, exceed, in real utility, this *amusement*. Experiments that are made with spirit and accuracy, are of incomparable value in every branch of natural philosophy: those of agriculture, which is the most useful of those branches, must be particularly valuable. The variety that is to be thrown into trials of this sort, is amazing; of such extent, that many lives might be spent in no other employment, and yet leave millions of trials unthought of.

The most valuable discoveries that have been made in philosophy and mechanics, have been the effect of chance; a lesson, by the by, not a little humiliating to the human mind. It should, however, be a spur to incite one to trials of every kind that fancy can imagine; as in the vast range of variations, some noble discoveries might possibly be made, that would prove of uncommon utility to the human species.

The mediocrity of the common product of wheat, for instance, is very surprising; for it has been found, by experiment, that crops, vast in comparison of the general ones, may be raised. Mr. Yelverton's famous one of wheat, amounting to above twelve quarters per acre, shews what the surface of an acre is capable of yielding and supporting.

porting. Now it is surprising that such a fact has not excited various endeavours to extend the product of wheat, and other grain, by numerous trials, that in a great number some few might lead to discoveries of real importance.

To a man of true spirit, a thing's never having been, is no argument that it never should be. No man breathing could conceive before the discovery of the mariner's compass, the existence of such a phenomenon. Sand and ashes, &c. were in the world many thousand years before the discovery of glass. Could Cæsar form an idea of a powder potent enough to reduce him and all his conquering legions, in an instant, to nothing, when he accidentally cast his eye on some nitre and charcoal? Who will be so hardy as to assert, that yet greater wonders than any of these, are not existing unknown in every part of matter? We may daily tread on substances, which in certain mixtures might rise up in new worlds of wonder? Things surpassing the utmost extent of our capacity to conceive, may wait only for the hand of accident to be discovered to mankind. Who knows but there may, in the walk of agriculture, be compound manures powerful enough to give a fertility to the earth vastly greater than any thing we at present know of?

But without recurring to such supposed discoveries, the common practice in many points much wants to be *known experimentally*, that any man may be able to declare precisely in what degree it is valuable, and in what deficient; also the comparative value of different practices, rising from the worst of common management, to the highest perfection of modern improvements. The following subjects in agriculture are either totally unknown,

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known, or so incompletely, as to satisfy no inquisitive search.

1. The comparative merit of the Old and New Husbandry, in the culture of many plants, in separate crops; and also in continued courses of crops. This comparison to be further divided into two methods practised in the utmost perfection; the Old Husbandry, as commonly managed, and the New, without manure, but a change of crops.—The Old, as commonly managed, and the New without manure, and no crop but wheat.

2. The broad-cast husbandry to be compared, in all its different stages of good and bad management, in single crops, and also in continued courses. The former in this, as well as in No. 1. should rise to a degree of perfection far beyond any thing commonly practised, both in trench-ploughing, and hand-hoeing, constantly repeated.

3. In what degree of merit are beans, pease, turneps, carrots, cabbages, and clover, to be ranked as fallow or preparatory crops? They should all be compared, in every variation, and for every sort of fallowing crop, with a direct summer fallow.

4. In what proportion and degree is manuring profitable? and how many crops does the profit last? This of every sort of manure.

5. What is the proper quantity of corn, of all sorts, to be sown both in the old and new methods?

6. The comparative culture, in every mode, of the artificial grasses, and their application to feeding and fattening all sorts of cattle.

7. The invention of machines more useful than those already employed in agriculture.

These subjects might be infinitely multiplied, but the few here mentioned are sufficient to shew,
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in a moment, that the most important objects of experimental agriculture, are yet unknown or disputed.

Most of these, and many hundreds of others, I inquired into with as much diligence as I was able, in a course of five years trials in Suffolk; where, in the compass of less than three hundred acres of land, I made some thousands of experiments, immediately minuting most of them, and registering above nineteen hundred. I have selected such as are most useful, and shall lay them before the publick. But of what avail are the endeavours of one person, or indeed of several?—Variety of soils, and views, require that all gentlemen who make agriculture their business or amusement, should register their trials, and either publish them themselves, or communicate them to others who will take that trouble.

It is inconceivable how much the world would be benefited by such a conduct; all matters relative to rural œconomics, would receive a new face; every day would bring forth some valuable discovery, and every year that passed yield such an increase of knowledge, as to point, and smooth the way to discoveries now unthought of.



ESSAY XI.

Of periodical Publications concerning Rural Oeconomics.

I Have more than once ventured to mention, in these sheets, the importance of publishing experiments and observations in husbandry : a remark which will scarcely be denied. If the practice of all the branches of rural œconomy is of so much consequence as I have stated, surely it is likewise of consequence that every one may have the opportunity of knowing in what manner others have acted, whose situations have been similar to our own. It is with much earnestness that I have recommended to all gentlemen to register and publish, or allow the publication of their experiments and remarks in agriculture ; but many difficulties occur which prevent such a conduct. The chief of these is the want of a periodical receptacle of such intelligence.

Thousands may have made trials and observations, which would figure well in a letter, or a slight essay, but which would require too much amplification to form a book, or even a pamphlet : besides, supposing the matter ever so voluminous, many gentlemen would readily give the re-

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cital in a letter, without further trouble, that would never hear of a regular publication. Thus numerous experiments, and valuable remarks, may be perpetually lost, for want of a proper vehicle to convey them to the public.

It may, perhaps, be replied, that such a vehicle did exist, under the title of *Museum Rusticum*, and that others now exist of the same kind. But a very few remarks will be sufficient to prove, that none of them could or can supply the want, being upon a plan very different from what would be requisite for such a receptacle as I here mention.

The *Museum Rusticum* was set on foot and published by no body knows who; that is, it was a bookseller's job; nine parts in ten of the communications were from A. B. C. and D.: now this circumstance would be alone sufficient to destroy a much better work. The relation of experiments, without the addition of the author's name and place of abode, is not worth a groat: nor would many gentlemen appear among a parcel of fictitious letters, whose authority added nothing to the publication, and gained insertion merely to make up the stipulated quantity. Contrary to all which, a work of this nature should be published by an editor, who sets his name to it, who appears answerable for all insertions, and who can produce all the original letters he receives as his authorities; and this editor should be perfectly well skilled in practical husbandry.

If ever any letters were inserted without a name, it should be merely such as pretended to nothing but general reasonings, without any recitals of experience; and of these, the editor should admit none but what were excellent. It would however be better still to reject *all* anonymous ones.

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To this it is objected, that the quantity of communications might not be sufficient for the stated pamphlet; but in answer to that, no stated quantity or price should, on any account, be fixed; for that is a sure guide to vamping up a pamphlet for *profit*, not *utility*.

It should be published monthly, and regularly; as all irregular publications are disagreeable in many respects, and difficult to be well supplied with. The price should vary, according to the quantity; from three-pence, suppose to a shilling; or, accidentally, more. It need not stop for want of matter, because the whole would be good for but little, if the editor could not, upon occasion, supply an experimental essay, in quantity sufficient for a three-penny number.

Another circumstance observable in the *Museum Rusticum* is, its discontinuance; by which those gentlemen, who afforded it their correspondence, have the honour of being the authors of what is little better than old almanacks. One great utility of such a work, is the being able to trace the progress of improvement, both in agriculture at large, and in certain practices in particular, which would be extremely important and curious, in a long course of years: the volumes, however *old*, of a work that *continues*, are always at hand, and consulted; but universal experience evinces, that periodical works, however good, when discontinued, sink into absolute oblivion.

For these reasons, one requisite of such a work, is the *certainty* of its continuance; and that whether the publication is attended with loss or profit; for as to works, the continuance of which depends on the profit of the bookseller, it is an insult to common sense to ask, or think of gentlemen's becoming correspondents. The publication should

be by subscription, and the profits arising from it (if any) be applied to raising a fund for carrying it on, in case of the purchasers being too few to pay the expences: but if, as would be much the most probable, the sale continued so long considerable, as to leave no danger of this sort; in such case, the profit should be applied in giving medals and premiums for decisions on points of agriculture, founded on experiments, to be published in the work. In a word, *private profit* should, in such a work, be struck entirely out of the question; it should totally give way to *publick* good.

It is very plain the *Museum Rusticum* and other performances of that sort, by no means come under this description.

The rise of such a periodical publication as here described, could be disputed, I apprehend, by none. It would be a ready and certain method of spreading husbandry knowledge; and not only the continued series of experiments on an extended scale, but every slighter effort of reason and experience would there find a way to the publick, and become of utility to those who wanted information of any kind. Every part of rural œconomy would, by degrees, be canvassed by men, whom the world would know to practise what they wrote. No subject could be handled in such a manner, without being the better for it. Whoever was in any difficulty, or wanted any information or advice, might state his case in such a work one month, and expect a reply from some other correspondent the next, who had either experienced the same situation, or had considered it with more than common attention. All remarkable events or occurrences in the practice of husbandry would be communicated and duly registered, escaping thereby the oblivion into which a News-paper falls,
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and the imputation of falshood and romance, which naturally lies against all anonymous information. In a word, such a work would be a regular receptacle of useful knowledge in husbandry; from which any young beginner might, in a few years, learn more than from all the volumes written on the subject since the world began: for no article would be contained in it that had not the stamp of experience, nor that was not of sufficient merit to be accompanied by the writer's name. It is amazing that a society of gentlemen, known to each other and the world, have never attempted any thing of this sort. The difficulties at first, it is true, would be great; but time, perseverance, and perfect disinterestedness, would certainly overcome them all.

Some works have pretended to this utility: but they have embraced other and more extensive designs: some are anonymous, others are trifling, and *all* the jobs of booksellers, who decide their fate and their duration. What can be expected from such?

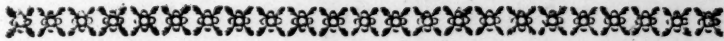
A P P E N D I X ;

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The Rural Socrates,

With explanatory Notes.

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KINGDOM OF
RUSSIA



INTRODUCTION.

SOME time since I drew up the preceding essays, I met with a small work in the French language, entitled *Le Socrate Rustique*. I perused it with great pleasure; surprised that so uncommon a relation should not have attracted the attention of those gentlemen, who read the modern French authors, with a view to discover those that promise best for translating: but by not seeing this rustic philosopher in an English dress, I apprehend the work is not included in that number. The merit and undoubted utility of it have determined me to procure a translation, that the public might not be deprived of the loss of such an example, from the concurrence of those common circumstances, which generally decide the neglect of foreign books, when deserving of attention; such as an improper taste (relative to *use*) in translators, or the ideas of booksellers, concerning their profit.

The work is peculiarly connected with the general cast of the preceding subjects, viz. the economical management of a farm; it enlarges on some of them, and presents other ideas, of indisputable use. Several parts of conduct, which I have omitted, are here enlarged upon; and the whole is the real management of a Swiss farmer

now

now living, It is the history of his practice, and displays an example, not only of œconomy, industry, sobriety, and every domestic virtue, but also of most spirited husbandry, much more correct and accurate than most of our British farmers can boast. It displays a poor peasant, coming to a small farm overwhelmed with mortgages, practising so animated an agriculture, as not only to gain enough to discharge his incumbrances, but to purchase more land, and to cultivate the whole with unremitted diligence and neatness. I should think myself very unhappy, were I to trouble the public with a trifling or a worthless book; but to the farming reader, or to those who can be interested with the memoirs of an honest industry, I flatter myself this little work will not be unacceptable *.

It has been received with uncommon pleasure in Switzerland and France.

The notes I have added, are marked at the end with an asterisk.

* It was written originally in German. This translation is from the French one.

In works of imagination, this would be an objection (tho' often practised); but in a relation of this sort, the case is very different.

THE
RURAL SOCRATES:

Or, A Description of the
Oeconomical and moral Conduct
OF A
Country Philosopher.

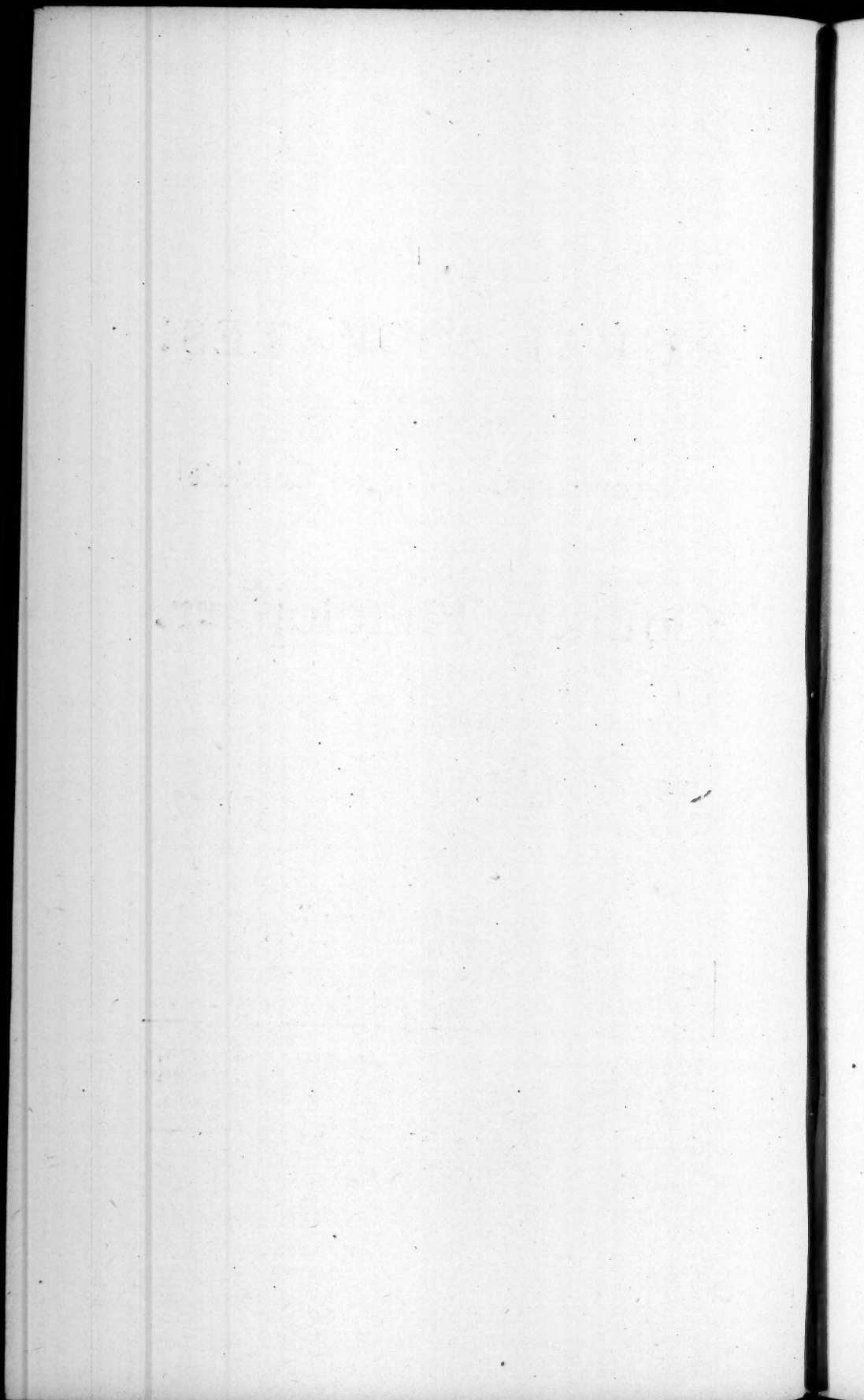
Written in GERMAN by
M. H I R Z E L,

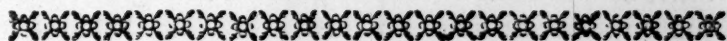
President of the Physical Society at Zurich.

SECOND EDITION,
1764.

Majores nostri virum bonum cum laudabant, bonum agricolam bonumque colonum. Amplissime laudari existimabatur qui ita laudabatur.

CATO.





Le Socrate Rustique:

O R, T H E

RURAL SOCRATES.

IT is no longer a controvertible point, whether the science of agriculture merits the distinguished attention of philosophical minds, and is the proper study of the most enlarged understanding; since the proof is beyond contradiction, that a judicious rural œconomy is one of the chief supports of the prosperity of a state. We every day see instances in common life, where the happiest disposition, most informed genius, superior talents, scientifick knowledge, even probity and virtue, become useless, and are lost in the wreck of their possessor's fortune, if he omits to regulate his domestick affairs by the rules of a wise and prudent œconomy. The same observation may be extended to the wisest systems of legislature, and the best political institutions, which lose their efficacy, and are incapable of defending a state from absolute ruin, unless a general scheme of œconomy, sensibly executed, provides for the subsistence of the people; either

either by finding within itself those productions requisite to the support of individuals, or exciting a spirit of industry to exchange with foreign nations the produce of manufactories, for the necessaries of life. There is something so seducing to the imagination in this last method, that there is danger of suffering ourselves to be deceived, in giving it a preference to the former. Through the medium of commerce, manufactures invite into the country, where they flourish, not only the necessaries of life, but every superfluity of wealth and luxury. However parsimonious the hand of nature may have been to such a country, it soon becomes more affluent than the most fertile soils, and increases in power and population almost miraculously. Yet, if agriculture remains neglected, all these advantages will be fluctuating and uncertain; whilst, on the contrary, where that is considered as the first object of national attention, it conducts directly and invariably to the end desired, without exposing us to the caprice of fortune. A state, that amply produces the sustenance of its inhabitants from its own bowels, has, at least, the advantage of independency; whilst the richest nation, when obliged to have recourse to the assistance of foreigners for the necessaries of life, submits to all the vicissitudes of unforeseen events; and, in many instances, must be subservient to the cordial or unfriendly disposition of its neighbours.

Switzerland is peculiarly happy in the favour of divine providence. The blessing of uninterrupted peace, for some centuries past, has been attended with the tranquil enjoyment of the sweets of liberty. Arts and sciences flourish on her mountains; leading in their train, wealth, plenty, and contentment. Population increases considerably, and the invention of new employments for the labourer
and

and mechanick, augments their number in the same proportion. Commerce and manufactures, extended so considerably, have opened an infinite number of channels for the conveyance of that wealth which flows from all parts of the globe. Yet, in the midst of all these advantages, a scarcity of the necessaries of life has been more than once experienced in a soil truly rugged and ungrateful to culture. Nor have its perplexities been much less when the devastations of war in the German provinces, contiguous to its republicks, made every moment horrid with alarming apprehensions of seeing those granaries, open at all times to our wants, shut for ever against us! In situations like these, when the possibility no longer exists of purchasing provisions for money, or at least, when the difficulties attending it are almost insurmountable, riches become useless, prosperity is no more, peace, liberty, justice, blessings so inestimable to humanity, are incapable of dispensing their benevolent influence to a people sinking under the miseries of famine; reduced to the cruel necessity of flying to other countries, in search of a less precarious subsistence, and of exchanging the noble and invaluable gift of freedom, for the detestably debasing shackles of slavery!

Such considerations frequently filled my soul with the most heavy inquietude; particularly when I connected them with the universally prevailing prejudice, that the lands of Switzerland were incapable of improvement. I looked round, and saw only here and there a single spot that seemed adapted to cultivation; the rest of the prospect presented a barren stony soil, or a clay so strong as to afford a crop too poor to indemnify the farmer for his labour. The only reflection that gave me any comfort was, that this prejudice, like many others,

might,

might, from custom and tradition, have usurped a right in the list of established truths. I immediately formed a resolution to divest myself of all previous prepossessions, and be convinced by experimental demonstration, of the reality or falsehood of the fact. I took all proper opportunities to gain information of the true state of agriculture in the different cantons; acquired an exact knowledge of the various kinds of pasture and arable lands; of the real proportion between their rents and produce; of the breed and number of cattle in each district. The result of these inquiries terminated in a conviction, that this evident want of fertility, was rather to be attributed to the decay and neglect of agriculture, than to the sterility of the earth. How are we otherwise to account for the variation of rent in estates, where the soil was naturally the same, situate in the same parish, and adjacent to each other? A variation so remarkable, that a farm of a hundred acres is sometimes let for more than one of a thousand; and the produce very nearly answers that proportion. Or how else should it happen, that the same ground rises or falls in value, so considerably, at different periods? I have seen some estates sold for a third less than had been given for them twenty years before; and others, whose purchase has advanced, in my time, to ten times this estimation, fifty years back (1).

The different degrees of care and skilfulness in the occupiers of these estates, may very probably

(1) A general officer of character, who commanded in Franche Comté, mentioned to me two estates in that province: the lease of one, within the present century, was 120,000 livres, which is now raised to 360,000; the other, farmed much about the same time at 180,000 livres, is now lowered to 44,000.

be the efficient cause of this variation; and I am apt to believe, it depends on our own diligence and industry, whether we will double the fertility of our lands, and by that means relieve ourselves from the state of dependency, under which we have hitherto lived. The proper methods of manuring, correspondent to the nature of the soil, are all that seem necessary for the completion of so salutary a work. The practicability of which is, from these instances, indisputably evident. A strong motive for endeavouring to attain this secret was, the facility of communicating it to a society of true patriots, who have made improvements in husbandry one of the principal objects of their enquiry.

But is it not presumption to flatter myself they will pay any deference to my opinion in a point of so great importance? May it not be objected, that I am acting in a sphere ill calculated for my capacity; and that, by neglecting the proper objects of my study, I hazard the world's approbation, on a subject foreign to my profession? Will it not be alledged, that improvements in agriculture require a share of experimental knowledge I must be utterly deficient in, since I am not master of a single acre of land; and the practice of physick does not admit of leisure for an accurate investigation of the methods of culture practised by judicious farmers, either by surveying the progress of their husbandry, or collecting hints from their conversation? To obviate these objections, I should first explain some particulars to the world. In the first place, I engaged in this undertaking, from no other motive than a sincere and upright intention of encouraging and stimulating such of my countrymen, who are able to penetrate deeper into the subject, and have more leisure to pursue what is so essentially necessary to the welfare of Switzerland. Secondly, I should

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confess

confess that the practical part of husbandry made the favourite amusement of the early part of my days. I resided in the abbey of Cappel from my ninth to my sixteenth year; the age, of all others, when the mind is susceptible of lasting impressions. The king had appointed my father intendant of the abbey. So extensive a tract of land, farmed under my observation, furnished me with innumerable opportunities for enlarging and completing my acquaintance with the various branches belonging to the cultivation of land, and the breed and increase of cattle. I went through the whole rotation of country business; constantly sharing the occupations of the labourer, according to the vicissitudes of the seasons. As I advanced in years, I employed the hours of relaxation from study in conversing with the most intelligent husbandmen I could meet with. Our discourses generally turned upon defects in agriculture, and remedies that might be applied. I was then convinced, and that conviction was the result of experience of the advantages attending a rural life. The natural beauties of the country, so profusely diversified, delighted my senses, and influenced my choice of a profession strictly associated with the contemplation and analysis of nature. My imagination was pre-disposed to feel the force of the beautiful elogium bestowed by the Greeks and Romans on agriculture. I acknowledged I had experienced the truth of that charming description, which Xenophon delivers from the mouth of the wise Socrates. "There is
 "no condition of life," says that divine philosopher,
 "however exalted, that should exempt a man
 "from the practice of agriculture. By exciting
 "in the soul an arduous activity for labour, it
 "diffuses the most pure and delightful satisfaction.
 "In augmenting our riches, it exercises the body,
 "and

“ and gratifies every rational wish of a free agent.
 “ The earth not only rewards the toil of cultivation with those blessings essential to the support of life, but also indulges us with whatever can contribute to the embellishment of our persons, our houses, our temples! Our senses are regaled with the most agreeable and exquisite perfumes, and enraptured with varied prospects of hanging woods and enamelled meads. The increase of flocks and herds, necessarily arising from agriculture, is productive of a variety of aliments, destined for offerings to the gods, as well as for the sustenance of men. But in this liberal dispensation of her choicest gifts, the earth denies their enjoyment to sloth and inactivity: requiring, rather, that the body, habituated to the inclemency of winter, and the fervid heat of summer, should become almost invulnerable, and capable of enduring every kind of fatigue. The task of manual labour, in obliging us to be thinly clad, considerably augments the strength and vigour of the constitution: and the necessity of rising early, incumbent on all good husbandmen, by a uniform course of exercise, renders them robust, diligent, and courageous. Each season has its peculiar employment, conducive to the prosperity of the citizen and the villager. He who wishes to serve his country as a warrior, will find material advantages from breeding and training coursers for the field? Agriculture forms men for the camp, by inuring them to hardships. Their expertness in digging, makes them singularly useful in fosses and intrenchments; and their dexterity in the chase, speeds their unerring shaft in the day of battle. What other art so bountifully distributes to its votaries the necessary wants of existence? Or what other

“ art so amply recompenses their care and affi-
 “ duity? A chearful fire-side in the country, and
 “ a warm bath, resists the roughest blasts of win-
 “ ter: and a free circulation of air; the coolness
 “ of winding rivulets, and lofty groves, abate the
 “ intolerable ardour of summer. A man of inde-
 “ pendent fortune will find agriculture the most
 “ agreeable and satisfactory of all employments,
 “ and what will furnish him with maxims for the
 “ strictest propriety of conduct in every station in
 “ life. In the cottage, justice is never perverted,
 “ since the best labourer is always the best paid.
 “ Humanity, and reciprocal assistance to the wants
 “ of their fellow-creatures, are daily practised by
 “ those employed in cultivating the same field with
 “ the sweat of their brow. Here the General may
 “ learn to instil obedience into his troops, by fol-
 “ lowing the example of the farmer, who invites
 “ his labourers chearfully to fulfil the task assigned
 “ them: rewarding the diligent, and punishing
 “ the idle. A good farmer sees the indispensable
 “ necessity of animating his labourers, in the same
 “ degree a General does his soldiers; and the hired
 “ peasant, who works for bread, has even more
 “ occasion for encouragement to perform his task
 “ with alacrity, than the voluntary companion of
 “ honour. Reverence to the Supreme Being is al-
 “ ways inculcated in the most forcible manner,
 “ from a constant series of observations, that all
 “ things are dependent on the will of Providence:
 “ that snow and hail, frost, drought, storms,
 “ blights, and a thousand epidemical maladies,
 “ destroy the fruits of the earth, and defeat the
 “ best efforts of assiduous industry, directed by
 “ consummate prudence.

“ Agriculture seems to possess an incontestible
 “ right to the title of parent and nurse of all other
 “ professions.

“ professions. Observe a country, where agricul-
 “ ture flourishes, and you will behold arts and
 “ sciences flourish in equal perfection! But where
 “ devastation lays waste the soil, or slothful neglect
 “ induces men to leave the earth uncultivated, a
 “ general stagnation, in maritime, as well as com-
 “ mercial affairs, immediately succeeds.”

These truths, so worthy of a sage like Socrates, beamed on my youthful fancy, and enlightened my understanding to fathom the secret principles of a science, that certainly is of the utmost importance and utility to mankind. Though the pride and absurdity of the polite part have affected to treat it with ridicule and contempt, and even to degrade its followers as a very inferior race of beings; yet to speak of husbandmen as a society, they are, perhaps, more deserving of philosophical consideration and inspection, than any other society in the world! In the country, humanity presents itself to our view, in a state of innocent simplicity, resembling, in some degree, the state of nature. The distinct faculties and properties of the soul may be analysed with greater ease, as they are less disguised and oppressed with a tinsel parade of artificial ornaments. A chain of reflexion instructed me in this great truth, that intrinsic magnanimity of soul is unconfined to rank; and that the meanest condition furnishes instances of exalted sentiment and understanding, capable of contributing to the general good of the community. I was likewise convinced that in all situations the consciousness of a rational application of our talents, the rectitude and integrity of our actions, are the sources of that pure and tranquil joy which is the constant result and reward of virtue. Mankind is the same in all nations: the different gradations of genius are equally discernible in the cottage and

the palace. I could trace amongst ploughmen, the character of a Lycurgus, a Socrates, a Plato, a Homer, and a Lucian! Nor ought I to conceal, that the marks of vice were sometimes to be met with. The apparent distinction between these rusticks and the fashionable part of the world, seems to consist in the objects, not degree, of ratiocination. The country is the proper school for acquiring a more intimate knowledge of human nature: for forming just ideas of happiness, and for discerning what constitutes the true greatness of man. Here I learned to despise the ridiculous vanity of those literary geniuses, who fancy their extensive erudition places them in a superior order of beings; where it is evident, their understanding is frequently clouded with prejudices, and their will, a slave to the dominion of the passions. This vanity, the excrescence of knowledge, is as contemptible, as it is apparent, to the eyes of a true philosopher. My sentiments now became more enlarged; all the disadvantageous descriptions of the manners and genius of those we call savages grew suspected, and I lamented our deficiency in relations of travelling philosophers, capable of investigating the secret recesses of the human heart, and contemplating the progress of nature, in her uncultivated offspring, with judicious and impartial observation. I am persuaded such remarks would throw new light on our enquiries into the different degrees of perfection in the intellectual faculty, and furnish the friends of human nature with materials for admiration and gratitude to the wisdom and goodness of the Creator in the order and disposition of his creatures. We should find that those nations, whom we brand as savage, might, with much more propriety, retort the appellation on their polite guests, who forcibly dispossess them of wealth

wealth and liberty! Nor should we have any remaining doubts, whether those amongst them, who have participated of the manners and sciences of the Europeans, act conformably to sense, in seizing the first opportunity, with eagerness, of returning to the simple and rational life of their countrymen!

After the preference I have given to a rural life, in regard to the agreeable, as well as the useful part, I trust the world will not condemn me, if, in those hours of relaxation which the busiest life allows, I return sometimes to what constituted the enjoyment of my youthful days. Surely I shall not incur its censure, for seeking to inculcate and extend some useful reflections, whose truth was then familiar to me; or for desiring to awaken in my fellow citizens, a taste for so noble an employment, and offering them, in the improvement of their own estates, the means of essentially promoting the welfare of their country. Finally, may I not be permitted, with impunity, to relieve myself from the anxious fatigue inseparable from the practice of physick, by a recreation that tends so manifestly to publick emolument?

That delightful sensation arising from the study of husbandry, I may now enjoy without reproach, since it is become a part of my duty to examine the nature of soils. The appointment of first physician to the republick of Zurich, makes it incumbent on me to watch incessantly over the health of her citizens, and pay peculiar attention to the different species of diet that afford nourishment to the different ranks of people. The consideration of a remedy for an epidemical distemper which raged some years since with great violence amongst the cattle, was strongly recommended to my care. Some knowledge of agriculture seemed a necessary

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preliminary to such a discovery, as it almost always happens that the origin of epidemical distempers springs from the meadow and pasture lands. *The rules (2) (inserted in our memoirs) for prevention of epidemical diseases in cattle, by correcting the insalubrity of the soil,* furnishes proof of what I advance.

This double motive inspired me with an ardent desire of exploring and explaining, with all possible precision, the present state of rural œconomy in Zurich; its imperfections and capability of improvement. In this pursuit, I again repeat my happiness in being a member of a society, who make this interesting subject the principal and constant end of their conferences and enquiries. Their assemblies, regularly held, supply, without any other assistance, every thing that is instructive and advantageous, in communicating those important discoveries, with which the most active and best directed zeal of patriotic spirits enriches agriculture in most parts of Europe; and which this society so well understands the benevolent application of to the pressing necessities of our country.

I must nevertheless acknowledge, that the methods hitherto pursued, do not appear to me, the best calculated to answer the purposes of improvement. An eager pursuit after new experiments, prevails amongst those, whose knowledge of the

(2) The government of Zurich, desirous to give these rules the force of law, published them by authority throughout their canton. The magistracy of Basil eagerly followed the example. The memoirs referred to, are those of the Physical Society, of which the author had been secretary. It has been observed in the preface to the translation, that the Rural Socrates was read before the Society, and is a part of the memoirs.

ancient husbandry is superficial and incompetent. Some there are who flatter themselves with being considered as the great improvers of agriculture, from the introduction of some unknown species of corn, or artificial grass. There are others who expect fame from the invention of some new implement of tillage or different method of ploughing and sowing, whilst a third sort hope to acquire it by untried objects of attention; such as the culture of Mulberry-trees, for encouraging the breed of silk-worms, &c. In opposition to these opinions, I apprehend the first principle we ought to set out upon, is a perfect knowledge of the nature of soils, with a competent insight of such methods of manuring as are practised by the most indefatigable and industrious farmers for the attainment of a degree of fertility. What remains, is to procure a free communication of these discoveries in husbandry, and an endeavour, by all possible means, to incite a laudable and fervent emulation in the farmers. This I should think an eligible plan for restoring agriculture to a flourishing state. The most circumscribed genius may follow practical rules, unmolested by any obstacle; whilst new inventions are attended with a crowd of difficulties and objections. One part of mankind believe that, in adopting them, we insult the memory of our worthy progenitors, who, according to their way of reasoning, have transmitted to us the common methods of cultivating lands; and who, by their œconomy, love of labour, and many other respectable qualities, are deservedly the objects of our imitation. Another part agree, that the late discoveries are certainly very beneficial to particular countries, but repugnant to the nature of our soil. There are yet a third set of objectors, who allow all these improvements to have advantages in particular

ticular respects; but assert, that their superiority over the vulgar course of husbandry is so equivocal, they must, at least, be considered as of small utility. Instead of contenting ourselves with recommending the husbandry of our best farmers as a model for others, let them be encouraged to pursue it by the testimony and conviction of their own eyes. The experience necessary to assure them whether such or such methods are best adapted to the nature of the soil and climate is already attained, and the advantages arising from them easily calculated. Besides, that it cannot be disputed, notwithstanding what has been alledged, of the general decline of agriculture amongst us, there are farmers in Switzerland who may be accused of any thing rather than ignorance in husbandry. A more universal and generous diffusion of the knowledge of individuals, seems all that is wanting to bring this art to perfection. The traveller, who crosses the greater part of our cantons, is amazed at the diversity of natural riches presented to his view, in a country so wild and romantic. It is scarcely conceivable how the inhabitants have been able to collect within so limited a spot, the various productions of almost every part of Europe! He traverses the fields covered with waving corn, terminated to the right and left with vineyards: orchards of fruit conceal the villages from his sight; whilst he hears the distant sound of lowing herds and bleating flocks from the mountains that furnish them with food! I will even venture to affirm, that many strangers may draw useful observations from the customs, and practical regulations of our most distinguished farmers. Perhaps the paucity of writers in our own country may be the only reason for her not having acquired that reputation for rural œconomy, which she enjoys with

with an uncontroled title in all other branches of the arts.

I have no meaning on the other side to depreciate the merit of those noble-minded fellow-citizens, who have appropriated a considerable part of the superfluity of their income to the procuring of new-invented implements of husbandry : several sorts of grain and grass-seeds, trees and shrubs unknown in our climate, which have the experience of other countries in their favour, as well as the trials made before they were communicated. These public-spirited attentions, of whose good effects we have already reaped some advantage, undoubtedly merit our commendation and acknowledgment. The introduction of potatoes, turkey corn, or maize, and the progress of preparing turf (or peat) for fuel, may be comprised in the number : yet this plan for the improvement of agriculture, appears more uncertain and infinitely slower in its progress than that I have ventured to recommend. More uncertain, because men are too apt to embellish a favourite theory in their writings. The species of vegetation or method of manuring they are fond of, is often extolled far beyond reality, and they give the reins to fancy in lavish descriptions of ideal excellence. It must be a long course of experiments that alone can determine whether this or that corn or grass may be naturalized with real benefit to a country, or the adoption of a new system of husbandry, with its attendant expence, by an advantageous compensation for abandoning the old one. Experiments commonly succeed to admiration in a well-cultivated garden or nursery ground ; but when extended to large inclosures, the luxuriance of the produce is often greatly checked and diminished, and its utility absorbed in the expence of labour. I have also observed, that new inventions

tions are very slow in their effects, and can be of no real benefit till they become habitually established customs. It is a work of time to convince a peasant that the alterations you propose are eligible: to persuade him to a renunciation of rooted prejudices, and to desert the course of husbandry instilled into him by his forefathers, in favour of novelty and inexperience.

I meet with nothing on this subject superior to the words of Socrates. "I have studied," says he, "with uncommon assiduity, the characters of men of every profession, who have been distinguished for prudence and understanding. I observed with astonishment, that amongst those engaged in the same occupations, some were rivetted in penury and want, whilst others enjoyed affluence and ease. The cause of this inequality seemed worthy of the exactest and most accurate examination; and the pains I took to investigate it at length succeeded: I perceived that those persons who formed no regular plan of life, strangers to reflexion and foresight, thoughtless of to-morrow, were, by the negligence of their conduct, the sole authors of their own distresses and disappointments. Those, on the contrary, whose steady and enlarged principles govern and guide their sagacious and determined views; who unite, in their several professions, diligence and attention, order and punctuality, qualities which smoothe the rugged paths of life, will find the journey more easy, more speedy, and infinitely more lucrative. These are maxims which whoever attends to, must gain his point, in defiance of opposition, and amass wealth, should the malignity of men, or demons, endeavour to wrest it from him."

I had

I had the good fortune to meet with one of these men, whom Socrates describes, in the person of Jaques Gouyer, a native of Wermetschweil, in the parish of Uster. I am indebted for his acquaintance to my dear and excellent friend M. Vægueli, with whom I had many conversations upon what might be most conducive to the improvement of agriculture in Switzerland. My friend could not have done me a more valuable piece of service; it calls forth all my gratitude, and I never was sensible of equal satisfaction to what I have experienced in my intercourse with this uncommonly singular character. Jaques Gouyer presented to my admiring eye, the most exalted faculties of the human soul, in that state of noble engaging simplicity, void of pretension and ostentation, such as nature's plastic hand first formed us! The circumstantial description I am preparing to give of his œconomical abilities, comprises, in my opinion, every thing that Socrates recommends; every thing that can most essentially instruct us in bringing husbandry to a state of perfection. I shall think myself happy if any effort of mine should kindle a laudable and noble emulation in our farmers. The just praise bestowed on the man I have selected for a model; the honours paid to his rare talents, may at least convince the farmers of the province of Zurich, that whenever they fulfil the duties of their station with equal intelligence and assiduity, they will, like him, draw down upon their heads the benediction of heaven, with the universal esteem and approbation of mankind.

In my delineation of the domestick conduct of this extraordinary person, I shall always call him Kliyogg (or little James), the only appellation he is known by in his own country. Every thing in him, to the least perceptible traces of character,
offers

offers a portrait, the combination of whose parts is so admirable, that I should be displeased with myself if I omitted the smallest line in the original. The character of Kliyogg, is not that of a man, reduced by frequent conversations with the inhabitants of some neighbouring city to assume and be despised for affecting manners incongruous with the situation of a peasant; much less one, whom the society of men of letters, or a superficial knowledge of books, has made a pretender to learning. Kliyogg is obliged to nature and his own reflexions for the wisdom he possesses: he owes nothing to art. Contented with his lot, he perseveres in refusing the acceptance of any office that might give him consequence in the village where he resides.

His brother lives with him: their families, though large, form but one household. Kliyogg has six children, and his brother five. They are all, except one daughter, mere infants. At the death of their father, his inheritance was divided amongst five sons: the eldest chose the richest part of the estate for his share; the two next preferred money, and our associates remained joint heirs to a tract of land of about ninety-four acres (3). It runs thus:

(3) Acres, in the canton of Zurich vary from 30,000 to 36,000 royal square feet. The proportion between the Paris royal foot and the English foot is this: if the English foot be divided into 1000 parts, the Paris one will be 1068. The English acre contains 43,560 English feet, or 46,522 Paris ones; therefore, supposing the Zurich acre to be 33,000, the proportion between the Zurich and English will be, as 10 to 14; that is, 10 English acres will make 14 Zurich ones, which is nearly $1\frac{1}{2}$.

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Meadow ground	-	-	-	15	} Acres.
Arable	-	-	-	45	
Pasture	-	-	-	24	
Wood	-	-	-	10	
Total	-	-	-	94	

The value of this farm might be 875 l. It had a mortgage upon it of 437 l. 10 s. at the time of their father's death. Besides this, it was charged with the payment of the younger brothers fortunes. One of these died soon after, and returned them a third part; so that by adding the youngest son's fortune of 109 l. 16 s. the debt amounted to 547 l. 6 s. This undoubtedly appeared a heavy incumbrance on so small an estate; and the neighbouring farmers judged with great probability, that our two brothers must soon sink under it. Indeed, how could they see any other prospect in their hazardous situation? Involved with the management of a farm, whose produce must previously raise an annual rent-charge of at least 21 l. 17 s. for the payment of interest, and the land so impoverished and neglected, that it seemed impossible to manure it but at an immoderate expence. A family so circumstanced, where there were many mouths to be fed and few hands to work, must occasion great consumption, and afford small assistance. Towards the cultivation of a farm, the necessity of hiring labourers, appeared indispensable, whose wages are greatly advanced from the manufactures carried on in that part of the country. So many united obstacles, produced that effect on the mind of Kliyogg which they ought, but rarely do produce on the mind of every other man! They animated him with resolution to redouble his zeal and application to surmount them. He made reflexions on
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the best manner of improving his estate, and pursued it with speed and alacrity. Heaven beheld his perseverance with a smile of complacency, and rash judging envy was forced to acknowledge, that our prudent œconomist contrived, without foreign assistance, or contracting fresh debts, considerably to augment his income. His children are abundantly supplied with food and raiment; the health and vigour of their constitution increases, and he has all imaginable reason to hope they will, in a few years, be able to assist in rendering the task of labour still more successful. Punctuality in payment keeps his mind at ease, and the overplus his œconomy supplies, enables him to extend improvements, and even to purchase, as they fall in his way, several pieces of ground that are conveniently situated. Does not the example of Kliyogg, in a great measure, contradict the established opinion, that the owner of an incumbered estate is incapacitated from making improvements, for want of the necessary utensils of husbandry, and live stock to enrich the soil?

Kliyogg's live stock consisted of

Oxen	-	-	-	-	3
Cows	-	-	-	-	4
Horse	-	-	-	-	1
Hogs	-	-	-	-	2
In all	-	-	-	-	10

His cows are small, according to the breed in that district, but well fed, and yield plenty of milk. The purchase of the finest cow he sets at 3 *l.* 1*s.* 3*d.* The second at 2 *l.* 12*s.* 6*d.* and the two smallest ones at 2 *l.* 3*s.* 9*d.* The profits of the dairy are consumed in the family. According to his calculation,

lation, exclusive of grass in the summer months, they eat two loads of hay each cow annually. His oxen are strong and well made, and cost about 5*l.* 9*s.* 4*d.* a beast. Though they are hard worked, they are in good plight. Their allowance is three loads of hay per ox. Kliyogg finds it answer to buy two or three lean bullocks every year and fatten them for market. The first price of these is commonly 4*l.* 7*s.* 6*d.* and the allowance to each a load of hay, which may be laid at 1*l.* 6*s.* 3*d.* The selling price of a fat bullock is 6*l.* 2*s.* 6*d.* so that his profit, in reality, is no more than a pistole; and, small as it is, depends on the constitution of the animal, and the rise and fall of the market. It is not from this article that Kliyogg expects advantage, but from another more to be depended on, the encrease of dung for manure.

Kliyogg finds his horse more expensive than serviceable, and seems determined to sell him, and lay out the purchase money in bullocks. A horse, he says, is a very expensive animal. He requires the same quantity of hay as the ox, besides oats to the amount of a pistole a year. The value of a horse decreases with years; whereas an ox, when old and past labour, may be fattened and sold to his master's benefit. In a word, he computes, that two oxen may be maintained to one horse (4); and, it may be added, horse dung is not near so beneficial to land as that of horned cattle.

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(4) This determination of our cultivator is very remarkable, and should be attended to by all English farmers and others, who ever have an opportunity of making a choice between horses and oxen for the works of husbandry. This peasant attended to the minutiae of the comparison with an accuracy unattainable in his superiors. He worked them, fed them, and performed every office relative to them himself.

The advantages Kliyogg derives from his cattle are, first, milk and butter for family uses: secondly, work: thirdly, manure. He very rationally considers the last article as the fundamental basis of improvement of soil; consequently he has applied the whole force of his care and industry towards its accumulation; and has so well succeeded, that, from his small number of beasts, he collects yearly, about a hundred tumbrel loads (5). This is double the quantity he gathered the first year of his farming, which was equal to what had been done by any husbandman in the village, and led him to conclude, "that the generality of farmers have too great a proportion of live stock to their ground." A conclusion that appeared to me at first very extraordinary! and almost tempted me to believe my philosopher a man of paradox and singularity. But his explication of this ænigma, satisfied and undeceived me. "When a farm," says he, "is over-stocked, the farmer is forced to send his cows, in the summer months, to graze on commons at a distance from their sheds, which is the loss of so much to the farm-yard. The poverty of these commons reduces their milk; and to remedy this inconvenience, the manger must be filled with fresh grafs when they are brought home at night, which infallibly occasions a diminution of winter stores. Scarcity of hay must be supplied with straw, which ought to have been entirely appropriated

self. How particularly judicious therefore must be his ideas of the matter! The proportion of *two* to *one* is a prodigious superiority to oxen, absolutely decisive: it is the discovery of a proportion that was greatly wanted in husbandry, and should be kept in memory as a point of knowledge. *

(5) Tombereau.

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“ to the use of the dunghill, as without it no improvement of soil can be expected : besides that, the want of succulence in food is the source of an infinite variety of distempers.” In this manner the judicious Kliyogg pointed out one of the principal causes of the decline of agriculture in this country. It is a certain fact, that many of our farmers keep more cattle than they can conveniently support in winter. The arable and meadow lands are, by this bad management, deprived of part of the manure they require. The cattle enfeebled for want of wholesome nourishment, particularly as spring advances ; some lose their milk, others their labouring strength, and frequently die of diseases easily accounted for ! These are melancholy truths that experience too well evinces (6) !

Our sagacious husbandman keeps no more live stock than he can amply support with grass and hay from his own fields. The straw is carefully preserved, and used only for litter, which he is so liberal of in his stalls, that the beasts are entrenched in it up to the knees (7).

(6) This part of Kliyogg's œconomy is very particular. The Swiss farmers must manage very differently from the British ones, to be so over-stocked with cattle. The misfortune in this country is, the not keeping enough ; but how a man should in general overstock himself in winter I know not, without supposing the most egregious folly. Large stocks of cattle are the soul of good husbandry : but winter food should certainly be provided. The writer of this work does not sufficiently explain the article of winter : I apprehend it is hay alone : all the straw is for litter : turneps are mentioned, but so very slightly, that one can discover nothing of their management. If therefore hay is the only food, the overstocking is explained, but the husbandry is wretched. *

(7) A most excellent practice that cannot be too much admired. It is amazing the quantity of manure that may be raised by such practices, when a man can command a plenty of litter. *

He is particularly attentive in gathering all the dried leaves, moss, and rushes from his ground, that can serve for litter. The small dead boughs of fir-trees, afford plentiful materials for this purpose, and he employs in that occupation the greater part of the time he can spare from actual labour. A compost dunghill appears to him an object of so great importance to the improvement of land, that, of all branches of labour, he regrets the want of assistants in this salutary work the most; and waits, as a singular blessing from heaven, the time when his children will be capable of contributing their share. So thoroughly is he persuaded that he wants only labouring hands to procure fifty loads more of manure without encreasing the number of his cattle.

In prosecution of this design, in autumn, during the moon's encrease, Kliyogg goes into his wood with a hedge-bill to prune the supernumerary branches of firs and pines; lopping those he thinks it for the advantage of the tree to leave, and boldly venturing to cut the lower shoots of young trees close to the trunk: these he binds into faggots and carries home, placing them in a cart-house till a proper season for prosecuting his work. At leisure hours, and especially in long winter evenings, he prepares these faggots for the purposes intended: an employment neither disagreeable nor fatiguing, which serves him for recreation. He begins with cutting the small boughs and prickles from the larger ones, laying them in little heaps to be used for litter, while the larger ones are reserved for fuel. By this method of proceeding, he amasses a great many proper materials for good manure: materials that are commonly suffered to rot uselessly in the woods, which is so much real injury and loss to husbandry. Kliyogg considers this discovery
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very as an inestimable treasure, of which we were either ignorant, or had forgot we had ever known. An opinion farther verified in Zelwegner's description of the method of husbandry in the canton of Appenzell. They there scatter the dead branches of fir and pine-trees in great roads to be trampled by cattle and passengers, by which means they acquire a beginning of putrefaction, and are converted into manure of a very indifferent quality: but Kliyogg, who had experienced how defective this method was, has succeeded in what, at first, seemed hard to accomplish; converting these very materials into excellent manure. It is known that the resinous and aromatick juices contained in the prickly parts of pines are powerful enemies to putrefaction: but what obstacles are not to be surmounted by reason and vigilance, seconded by industry and labour? Kliyogg subdued them all, by submitting to certain rules in the preparation of litter for his cattle, and in peculiar attention to the different strata of his dunghill.

In regard to the first article, he seldom removes the litter under a week, strewing fresh upon the top once a day; by which means it becomes impregnated with animal salts, and acquires a very evident degree of fermentation before it is removed to the dunghill. An objection may arise against this practice, which I could not avoid making myself: that the strong effluvia arising from the fermented litter, must be prejudicial to the health; but Kliyogg assured me, experience contradicted this, and thanked God that his beasts had been remarkably healthful and vigorous: nor does this method prevent cleanliness, if a constant supply of fresh litter is attended to: the cattle are, at the same time, more warm and comfortable.

This exactitude is equally conspicuous in disposing of the litter when taken away. It is laid in separate heaps upon the dunghill, so methodized, that those where the fermentation is already advanced, may accelerate the putrefaction of others where it is more slow. In the beginning of autumn he litters his cattle with straw for two months; the next two months he litters them with brushwood and spines from fir and pine trees; then straw again or rushes and dried leaves; then brushwood, and so on alternately.

The regulation of his compost dunghill is as follows: lest the fermentation should be totally suppressed, or even checked by drought, he is assiduously attentive to the preservation of a certain degree of moisture. The celebrated M. de Reaumur, in his treatise on hatching eggs in ovens or hot-houses, observes, that when the heat of the hot-bed decreases, it should be watered to encrease fermentation. The sagacity of our philosopher has explained to him, that to obtain a manure thoroughly rotten, he has nothing to do but to preserve a constant fermentation by frequent waterings. To facilitate this, he has sunk seven large square pits, which have wooden covers. In these pits he keeps the prolific water, essential to so many operations: first, putting some thoroughly fermented cow dung at the bottom, he pours in a proper quantity of boiling water, and then fills up the pit with fresh water from a neighbouring pond: this brings on, in three weeks, a state of putrescence, which, without boiling water, could not be attainable in two months. He has thus a perpetual supply of corrupted water, as well for the purposes of vegetation, as to keep his dunghill
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in a constant state of humidity (8). But as the expence and labour of such a work might far exceed the profit: Kliyogg has thought of a means, that, in a great measure, reduces both: this he calls, in his language, "going the shortest way to work;" which is a fundamental maxim in all his proceedings. In pursuance of it, he dug a pond in an orchard adjoining to his warehouse at a proper height, to convey whatever quantity of water he has occasion for by a wooden pipe directly into the copper. His reservoirs of standing water are sunk, with the same view to conveniency, below his stalls and stables. There is likewise a trough at the declivity of the dunghill, to receive the water that drains from it, which gives an easy opportunity of

(8) Were the encouragers of agriculture to compare what is here related with part II, section 5, of that incomparable work of Dr. Francis Home's, already quoted, they would certainly be struck with the exact similarity that appears in the practical husbandry of our judicious peasant, and the precepts the Doctor gives as new observations. Kliyogg discovered them by the light of nature; Home, by his profound knowledge in chymistry! "Let us make," says he, page 61, "some practical observations with regard to the management of dunghills; for this is an affair of considerable importance, and in which farmers seem to be very ignorant."

"Dry vegetables require a considerable degree of moisture before they can be brought to putrefy. I think dunghills are generally kept too dry, as they are commonly placed on a high situation, and are themselves raised to a considerable height. A hollow situation, which will retain the moisture, is the best. Too much moisture is likewise bad. This may be prevented by having hollow places with clay bottoms at the side of the dunghill, into which the superfluous moisture may be allowed to run, and from whence it may be restored again by pumps to the dunghill at pleasure."—And again, "there are ferments for the putrefactive fermentation as well as the vinous. Hence Stahl, *Corpus in putredine existens*, &c. &c."

If the urine of horses and stall-fed cattle is carried into proper reservoirs, and there allowed to turn stale, it will, if thrown on the dunghill, very much quicken the fermentation.

moistening the dunghill frequently, without robbing the soil of its appropriated share of the standing water.

The success of this method of watering suggested an idea of preparing small twigs of fir or pine for culture, without being used for litter. His process was to lay them in close heaps, pressed down, and covered with earth, to prevent evaporation, and to pour stagnated water on them every day till converted into rich mould.

Kliyogg is so perfectly convinced of the efficacy of heat in accelerating putrefaction, that he believes all soils, even the most barren, may be rendered susceptible of fertility by the help of fire: upon this principle (9) he infers, that an extremely hot dry summer will be succeeded by a remarkably fruitful one. "Heat," says Kliyogg, "putrifies (10) and enriches." In consequence of this opinion he told me, about the middle of the winter 1759, that the ensuing harvest would yield three sheaves

(9) It may be necessary to observe, that where the soil is ferruginous, that is, impregnated with iron, fire will, on the contrary, encrease its sterility. The farmer cannot be too careful in examining the quality of his lands by the usual experiments, which cannot be too often repeated.

(10) We shall be sensible of the truth of this observation of our judicious peasant, if we extend our reflexions to those countries where the climate, without being excessively hot, is yet several degrees warmer than our own; and where we shall find a much more vigorous vegetation than can be accounted for from difference of soil or labour. Herodotus assures us, the lands of Babylon produced from two to three hundred ears of corn to our one. Pliny says, that in Lybia, the proportion was one hundred and fifty: Chili produces from sixty to eighty and a hundred. The fertility in particular districts of Peru, is still greater. There are fields where the reapers gather four or five hundred to one of all kinds of grain. Mr. Adamson, an ingenious naturalist, attributes the
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sheaves instead of one. The event confirmed the prediction. He repeated the same thing immediately after the drought last year; which is verified in the present year of plenty, 1761. It will even appear that the earth has been more lavish in her productions this year than the preceding, if allowances are made for constant north winds, till the beginning of April.

Our indefatigable cultivator does not bound his improvements within the circle of that quantity of manure, however surpassing credibility, which his industrious application increases from so small a number of cattle. He buys every year seven tumbril loads of dung, which cost him 1*l.* 10*s.* 7*d.* These he mixes with six tons of peat ashes, which come to about 2*s.* the twenty bushels. He finds the effect of these two kinds of manure answerable to the price.

Not satisfied with this, he turns his attention towards other methods of enriching land. With this view he took a journey into the bailiwick of Kegnspurg, where they use marl with great success; which is found in abundance below Laguerberg. He made strict inquiry into its properties

extraordinary fruitfulness of the sands of Senegal to the effects of heat. He informs us, that he sowed several sorts of leguminous seeds, which afforded twelve crops in a year. The never-failing golden harvests of Sicily, Ægypt, and part of northern Africa, are well known; and with what riches the kingdoms of Sicily and Spain formerly repaid the labour of the husbandman, when the one could maintain thirty-two cities, and the other furnish bread for fifty-two millions of inhabitants! Let us recollect the ancient fertility and population of the Holy Land. Let us cast a look towards China, and some particular provinces of India and Persia, and we shall be convinced at least, that all things considered, there cannot be so great a proportion of manure, or of indefatigable labouring hands in those countries as in our own.

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and the manner of using it. This species of improvement appeared to him so desirable, that at his return he made many unsuccessful attempts to discover marle in his own grounds. What pity that this examiner of nature should be a stranger to the use of the boring instrument in these sort of enquiries! As a succedaneum for marle his industry discovered a method of improving land that answered very near the same purposes from a small gravel, of which I shall give a circumstantial detail when I describe the manner of Kliyogg's preparing his land for corn. He likewise found in turf, cut from the surface of the pasture or fallow land, where the grass is very luxuriant, proper materials, when well prepared, for rich manure. The preparation consists in exposing the turf for two years in open air, to all the influence of tempestuous seasons, till entirely decayed, when it may be spread with certainty of success on meadows or corn-fields. Kliyogg never suffers prejudice of any kind to lead him to the rejection of new experiments, but thinks them all deserving of a fair trial, and testifies his gratitude to the kind communicator. He apprehends, in general, that all mixtures of earth, where their nature is diametrically opposite, contributes to fertility; nay, even where the distinction lies only in colour; and has no doubt of improving a field, if he can contrive to carry, at a moderate expence, fresh mould to it of a different quality. Thus a light soil is improved by a heavy one; a sandy soil by a clayey one; a blue clay by a red clay, &c.

It is by this compound method of husbandry that his fields are enriched; and a perfect knowledge of the various strata of earth and their occult qualities, is, in the opinion of our judicious cultivator, the fundamental basis of agriculture: lands
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are more effectively improved, and with less trouble, by proper manure, than (11) by frequent ploughing or digging, notwithstanding that Tull, an English writer, attempts to prove the sufficiency of the latter. Let it be granted that manure has no other effect than to heat and render the earth more porous, from the fermentation excited. Is not this effect more likely to be produced from the facility with which it penetrates according to its nature, the smallest particles of earth, when in contact with them, than from a simple division of these particles by an operation merely mechanical? It may likewise be added, that the oleaginous and saline parts contained in manure are extremely conducive to the nourishment of plants; nor is it less certain that an union of these two methods of improvement, is the ultimate perfection of husbandry. It would be for the advantage of every farmer, if he had leisure to plough his lands according to the rules laid down by Tull and his imitators, after having first dressed them with proper manure (12).

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(11) Those parts of rural oeconomics which have divided the opinion of the superior class of cultivators, will by them be very seldom determined; their ingenuity is too great to admit of entire conviction: the unprejudiced part of the world should, in such cases, be determined by opinions totally unbiassed by *systems*. Kliyogg's testimony in this affair coincides with that of the best husbandmen from the beginning of the world to this day; and I have found it true from the proof of some hundreds of particular experiments on both gravelly and clayey loams. *

(12) "The late King of Prussia, an excellent financier in many respects, and who had very enlarged schemes for augmenting the public revenues, reasoned very justly on the established principle of his political system, that agriculture is the foundation of the opulence and prosperity of a state. He encouraged it in the strongest manner, and made several regulations in its favour, whose wisdom was
" unperceived

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We will presently take a view of the consequences of the labours of Kliyogg and their agreement with various soils he cultivated.

His meadow land is all situated upon the flat, divided into the following pieces :

An orchard (the grafs of which is mowed and given to the beasts in the stable during the summer). quantity of land	- - - - -	1 acre.
A meadow at the bottom, divided into five pieces, which may all be laid under water	- - - - -	6 acres.
The produce of these in hay and after-grafs	- - - - -	12 loads.
A long meadow of	- - - - -	4 acres.
Produce	- - - - -	7 loads.
Another, situated in the Winikin, of	- - - - -	4 acres.
Produce	- - - - -	8 loads.
Hay and after-grafs	- - - - -	15 loads.

Both these have occasion for manure, as they cannot be overflowed.

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“ unperceived till many years after. The constant attention
 “ he paid to the observance of these regulations completed
 “ their salutary effects. This monarch had understanding
 “ to know (and all financiers ought to be proud of receiving
 “ instructions from a master) that the most stubborn and in-
 “ fertile soils are meliorated by manuring and ploughing;
 “ and that rich lands are made still richer. He therefore in-
 “ sisted that the farmers of his demesnes, and proprietors of
 “ estates in lands, should manure them sufficiently, and plow
 “ them deeply and frequently. When the king was ex-
 “ pected to pass through any of the provinces, the gentlemen,
 “ the farmers, nay even the peasants, thought they could not
 “ pay their court better than in placing a large dunghill be-
 “ fore their doors! A powdered courtier might sneeringly de-
 “ ny

He hires moreover in a village adjacent, a meadow of three acres for 4*l.* 16*s.* 3*d.* per ann. which is already greatly improved. His industry has enabled him to augment his crop of hay eight loads, which is almost one third. I was curious to know why the long meadow did not furnish so much hay by a load as that in the Winikin, though their dimensions were exactly the same? He imputed this deficiency to neglect of manuring and ploughing, as he had wanted time to finish them properly. It ought to be observed, that the hay was commonly double the quantity of the after-grass. An acre of land, improved to the height, according to Kli-yogg's computation, will require, for two years, ten loads of dung, or twenty tons of peat ashes (13); and he thinks the latter sort of manure answers best for meadows that cannot be overflowed.

Laying meadow under water, furnished a second means of improving the soil so extremely advantageous, that the difference is very immaterial between the crops of a meadow well watered or

“ny this œconomical attention a place amongst the royal virtues; but the sagacious monarch was sensible, that these dunghills spread over the fields would produce a crop of ducats. He had the satisfaction to see, after reigning some years, the sands of the Marche of Brandenburg, the heaths, and morasses of Prussia, covered with a plentiful harvest of the finest corn in the world. The king, his son, supplied all that was wanting to bring this noble plan to perfection; and we have seen in a very short space of time, the sandy desert, that extended to the very gates of Berlin, converted into excellent land by a kind of œconomical enchantment.” (Political Institutes, by Baron Bielfeld. Vol. 1. p. 181.)

(13) This proportion is a point of consequence, and should engage all farmers who have the opportunity of getting peat, to make the full use of so excellent a manure. *

well

well manured (14). This, indeed, greatly depends on the properties of the water, and the method of conducting it over the ground: water from the purest source, is, in his opinion, the best, especially when it can be procured immediately from the river itself; for he observes, it insensibly decreases in virtue in proportion to the distance. I confess that I could assign no satisfactory (15) reason for such a diminution, but did not think myself authorised to dispute the reality of his observation, having

(14) This is a part of husbandry strangely neglected in England, but of undoubted importance: I experienced it in my Suffolk farm, and yet stronger in my present Hertfordshire one, where any person that will call on me may see the vast difference between a meadow in the parts watered and unwatered. I had this year (1769) as much hay from off one watered acre, as all the other four unwatered ones in the same field. *

(15) The difficulty is not perhaps so great as may be imagined, to support this observation of Kliyogg's on physical reasoning. A deep stream preserves near its source, a temperature very little variable in all seasons. From eight to ten degrees above freezing, is, according to Reaumur's thermometer, the greatest variation. But a river, whose surface considerably exceeds its depth, will acquire, during the summer solstice, an increase of heat in proportion to the distance from its source. When this is too intense, it has been proved, that far from refreshing the grass, it parches and injures it in many respects. It is also customary in some countries to overflow meadow land in winter, especially towards the spring; when water gradually melts the ice that may have lodged; but if this operation was left to the action of the sun, they alledge, the effects would be too precipitate and violent, and prove greatly pernicious to the young blades of grass. One may naturally conclude, that the winter best calculated for enriching a soil, has that degree of temperature already said to be inherent in water, near its source: and that a stream which from the length of its course has considerably augmented its original heat or cold, according to the season, must be more hurtful than beneficial. A further confirmation of this

having found in him, on all occasions of enquiring, those discriminating talents which constitute the character of an accurate philosopher; that facility of catching and disposing of objects in the right point of view, and that steadiness of attention in examining their constituent qualities, disengaged from prejudice. What I particularly repeat is, his indifference to render his ideas as distinct to others as they are to himself; and to methodize in all his observations the precise causes on which they are founded. It suffices, in truth, for his own purposes, to have his conception of things clear and comprehensive; but this perspicuity which exists in his own understanding, does not communicate itself in his conversation with equal clearness. Perhaps it is in this particular that natural genius, whilst uninterrupted, differs from what it appears when cultivated and adorned by art and application. The perception of Kliyogg is wonderful: he revolves in his own mind the

this hypothesis is, that water is always purest at its source, and acquires heterogeneous qualities from the land it passes over. Thus it may be impregnated with minerals, or discoloured with brick earth, or imbibe many noxious properties destructive to the fertility of the meadows it overflows. On the other side, there are instances of water drawn from the head of the spring, being found pernicious to adjacent meadows, and salubrious to those more remotely situated. Some rivers may, at their origin, contain arsenical or other noxious particles, which they may deposit in the beds of sand or gravel over which they run, and thus become purified. But it does not seem adviseable to overflow any land with such water, either during the excessive heat of summer, or the intense cold of winter. Excellent remarks on watering lands are to be met with in a memorial, which carried the prize, given by the Economical Society of Bern, inserted in their Journal, Vol. XI. sold at Zurich by Heidegguer and Company; and at Paris by Brocas and Humbolt, li Jacquos.

most

most minute particulars or distinctions in the subject of his contemplation with amazing velocity and strength of judgment, but he does not trouble himself to disclose or explain them by words. His eye takes in with a degree of precision the dimensions of an object; he retains a strong idea of it, but vague and indeterminate, because not built on any established rules. Thus his calculations remained confused and unsettled, and are often lost in new ones. I thought it incumbent on me to engage him to correct these defects. I instructed him in the method of keeping regular accounts of his expences, and recommended his sending one of his sons to learn writing and arithmetic, nor had I any difficulty in making him comprehend, that by particularizing every article of labour, expence, and profit, and marking the progress and minute circumstances which attended his improvements, he would be much better enabled to form a precise and adequate judgment of their value; whilst the wisest man may suffer himself to be deceived as well as deceive others, if he trusts to the uncertainty and deceitfulness of memory (16).

But it is time to finish this digression, and return to the detail of Kliyogg's observations on watering of meadows: he finds the water in mossy grounds is very injurious to grass, and dries up the roots entirely. Water loaded with gravel, may likewise be of the worst consequence to a meadow, so that the husbandman cannot attend too carefully

(16) An excellent remark! which cannot be too often repeated to all farmers. The experience arising from practical agriculture bears no proportion to that which is gained from the register of practical agriculture. A farmer knows whether he gains or loses, but in what articles? and in what proportions? How confined is his knowledge in these respects! *

to this article, otherwise his lands may suffer more from overflowing than from drought. Nothing ascertains the salubrity of water more than the production of cresses, brook lime, and succulent plants. But when a river is choaked with (17) rushes, spearwort, or moss, that water will be destructive to vegetation.

The rules necessary to be observed in sluicing of lands, are, according to Kliyogg, to take particular care that the great sluice and its dependent channels, be placed in a proper situation to distribute the water equally over the greatest part of the meadow. The direction of the principal trench ought to run across the most elevated part of the ground, in order to give a due inclination towards the collateral branches: nor should it be cut too deep, which would prevent the inundation from being gradually extended over the whole surface. It is likewise essentially necessary to slope the trenches in such a manner, that the water may be carried off with facility, and no part remain stagnant to occasion putrefaction: the turf once injured, the meadow would soon become swampy and the grass rank and unwholesome. It will also be necessary to change the trenches frequently, filling up those

(17) This is occasioned by the seeds of mosses and rushes, which the water propagates in its course. Those of moss soon rise and multiply exceedingly, covering the surface of the ground and entangling the fibres of the herbage and grass, till they are stifled, without supplying any nourishing food in their room; for moss never rises high enough to be touched with a scythe. Or, if hay could be made of it, the cattle would not eat it. To obviate this misfortune, cinder ashes may be strewed, which will kill all kinds of moss. And rushes may be extirpated if they are careful in drawing them out by the roots, and draining the ground that produces them.

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first made, so that every part of the land may reap, in turn, benefit from this operation. Our cultivator considerably augments the vegetative properties of the water by rich mould, procured, as I have already mentioned, from green turf cut from eminencies in pasture or fallow land. This he throws into the principal head of water, so that the lesser channels may imbibe and communicate fertility over the meadow (18).

The autumnal grass which Kliyogg converts into manure, supplies him with a third method of improving his meadow, for he thinks it very hurtful to the ground to suffer cattle to graze late in the year (19). Independently of the loss of so much manure, the beasts break the turf, and in a rainy season, which commonly happens in autumn, the impression of their feet forms so many cells for the water; and this water congealing in winter, greatly injures the roots of the grass. A new proof of the bad husbandry of maintaining a disproportionate number of horned cattle, which occasions the farmer to let them devour every blade of grass for their support, and run the hazard of extracting from the earth all its nutritious juices, till, by degrees, the farm is entirely ruined.

The laudable ambition of Kliyogg is not satisfied with the improvement of his meadows, but seeks to extend his demesnes, without, however, deviating from his grand principle, never to think of

(18) This is a good thought, but the benefit (on some soils) of casting unslaked lime into the stream would be much greater, and acquired at a much less expence. *

(19) This is most excellent advice: but through vast tracts of country in England, they suffer their cattle to remain in the fields all winter, and even feed on the hay in the pastures: there cannot be a more execrable system of conduct *

purchasing

purchasing more ground till he has carried the culture of what he possesses to the highest degree of perfection it is capable of attaining (20). How is it possible, says he, a husbandman should get through his annual rotation of work, unless he finishes the improvement of the old land, before he involves himself with the culture of new? Distracted with a confused multiplicity of labour, the augmentation of acres would only encrease his perplexity, without encreasing his wealth. The fertility of an estate is always in proportion to the culture bestowed; nay, it is even demonstrable, that if a man doubles his number of acres, and employs only the same number of labouring hands and the same quantity of manuring as when he had only half the number, that estate will clear less than it did before the additional purchase. Thus it is evident, a farmer may have too much ground as well as too much live stock. For our conviction, nothing more is required, than to take a survey of an overgrown farm badly occupied, where, on lands which have all advantages of situation, we shall see their crops of hay and corn that will not produce more than a fourth part of what lands of the same quantity and quality afford, divided into equal allotments, amongst the inhabitants of a populous village.

When Kliyogg converts one of his fields into a meadow, he always chooses the best soil, and com-

(20) I cannot read this work without expressing my surprise, that a book which certainly contains many ideas of culture, equal, at least, to any that have been offered to the public, should have remained so long unknown in England. The most refined experience could not start a juster observation: it is a lesson to all the farmers of every country in the world. *

mences the work by clearing it of stones with the utmost assiduity. He then ploughs it and gathers the stones a second time that lodge in the furrows, harrows it over, and when it is quite level and all the small stones picked up in a third gathering, he sows it with grass-seed; nor is he very anxious in the choice of seed, for experience has taught him, that the difference of herbage depends entirely on the nature of the soil and the preparation of the ground. The same meadow that is matted with moss and every kind of unprofitable beggarly weeds, will produce trefoil of the best quality when improved by manure, adapted to its nature (21). In this instance, we find a manifest proof of the infinite wisdom and goodness of the Creator. Let but the husbandman fulfil his part of the obligation by

(21) Kliyogg, in this remark, displays his real experience. I have often made the same observation, but it should be limited; for if the nature of perennial plants be bad, manuring will improve their luxuriance as well as that of the best vegetables. The following instance, mentioned by that excellent cultivator Sir Digby Legard, is a very strong proof “ I have often observed fields covered with white clover where “ pasture has preceded arable land, without any person’s remembering the sowing of it; and often, in an old worn-out meadow or pasture, a crop of this will appear after “ plentiful dunging. This fact of the white clover springing in great quantities on land, copiously manured, where “ there was, before such manuring, no appearance of it is very curious; but frequent in the northern parts of England “ and in Scotland. It is not confined to manuring with dung; “ but the same event follows, where a change of soil is made “ by lime or marle laid on in great quantities. I have an “ account by me of an uncommon large crop, no less than “ three tons an acre being produced at Kedgely-Moor, in “ Northumberland, in consequence of a large quantity of “ lime being laid on some acres of black moor land covered “ with heath: the heath was entirely killed, and this great “ burden of white clover succeeded, without any assignable “ means

by industrious culture, and leave the result to Providence. The most wholesome and nutritious plants will grow spontaneously; the winds will waft from distant fields the most useful and valuable seeds, which want nothing but a proper bed to mature them, whilst noxious and cankerous weeds, not finding suitable nourishment, will wither for want of the juices appropriated for them. Till lately, Kliyogg never heard of artificial grasses. The first account of them engaged his attention. The Physical Society remitted him some pounds of Flanders trefoil seed (*trifolium pratense purpureum majus*. Ray Hist. 944), requesting him to make some experiments. For this purpose he prepared a piece of ground near his house, in the manner I have described, and divided it into two equal parts; in one he sowed the Flanders trefoil, in the other common grass-seeds: both divisions were manured in the same manner and carefully watered from the stagnant pools, accurately observing the progress they made. Kliyogg kept an estimate of the profit arising, and of the resemblance or dissimilitude in fertility. In waiting the result, he made, last summer, several other trials of the Flanders trefoil in smaller spots of ground, some richly manured, others of the same size in an unimproved state. These various experiments tended to convince him that this foreign trefoil, like the grasses common to our own country, was more or less luxuriant according as the soil was more or less

“ means of conveyance of the seed. I find from other accounts, that the same commonly happens in the county of Galloway, where great quantities of such moor land have been lately brought into cultivation. Very copious manuring with lime, dung, or marle, appears there to destroy the heath, and produce white clover.” *Memoirs of Agriculture*. Vol. I. p. 366. *

manured. In regard to the grand experiment to find the difference of produce from the seed of trefoil and that of common grass, in ground where the culture and preparation are the same, Kliyogg declares he cannot discern any that is material. It is much to be wished that sensible and unprejudiced farmers would take equal pains in making experiments on lucerne, sain-foin, and other species of exotic grasses, whose excellencies are so highly extolled in the present age, as by a just calculation of their advantages over our natural herbage, we should be able to determine whether the substitution of them would answer. Some enlightened friends of agriculture have already informed me, that the trials they have hitherto made, fall short of the desired success, and that they find it much more profitable to continue the old method of husbandry, than to propagate these modern Dutch discoveries: for instance, the Flanders trefoil, which, in supplying a very succulent nutrition, excites cattle to feed immoderately. The consequence of this repletion is a series of very alarming distempers (22).

Kliyogg made me attend to a circumstance which may prove the destruction of a meadow if not corrected.

(22) I should imagine the only thing wanting to prevent this inconvenience, is a due regulation of the quantity of trefoil a beast may eat without hazard, and which never ought to be exceeded. A proportion not difficult to ascertain, with the assistance of a little attention and experience. *Observations by the Society of Agriculture in Bretagne*, an invaluable collection, recommend, in several places, what, to me, appears an excellent method. "It had been remarked by the Baron de Pontual, that to fodder cattle with trefoil only, heated them too much. A native of Flanders taught him to temper this heat by a very useful piece of œconomy. Amongst the Flemings, where the meadows abound with this grass, they make layers in their hay-lofts six or seven
" inches

rected. This is when the plantane is suffered to predominate, whose large leaves so totally cover the surface of the ground that no other herbage can spring up (23). He pointed to my observation a meadow, where the plantane was so interwoven and spread over the soil as to engross all its nourishment, and reduce it to sterility. The sole remedy for this evil, in his opinion, is to plough up the meadow and sow it with corn for some years; afterwards, by improving the ground as already described, it may be converted into meadow again. Let us now consider Kliyogg's husbandry in his own lands, which, in the district where he lives, it is the general custom to separate into three divisions. Kliyogg has fifteen acres in each. The first allotment is for wheat; his rule

" inches deep, of straw and trefoil alternately. The straw
 " imbibes the scent of the trefoil so strongly, that oxen and
 " horses eat both, with equal avidity. By this means the value
 " of straw becomes equivalent to that of trefoil, and the
 " cattle are preserved sleek and cool."

There is great probability likewise, that Kliyogg was unacquainted with the best method for the culture of trefoil. The same *Observations* inform us, " that it succeeded very
 " well when sowed with oats, which is the last crop in rotation
 " before the ground is suffered to lie fallow. President de Moutlue, who began to make experiments in 1758,
 " has had remarkably fine crops of oats. At the time they
 " were ripe, the trefoil was in great luxuriance below, about
 " two feet in height. The manure still remaining in the
 " ground after the first crops are mowed, and the ploughing
 " necessary for the oats, are equally beneficial to the trefoil.
 " Experience has convinced him, that with only the additional
 " price of seed, a man may have, for several successive
 " seasons, a rich meadow of trefoil, which may be mowed
 " in most years twice, and in favourable ones three and
 " four times."

(23) This is precisely the case in England; but the narrow leaved plantane, called in the north rib-grass, is an excellent pasture. *

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is six loads of manure and ten bushels of wheat or spelt (24), which last grain he commonly prefers, an acre. The produce is, in general, more than one hundred sheaves, which, when threshed, yield six sacks of winnowed corn: the sack containing ten bushels or two coombs and a half. Thus the clear profit of an acre of land is three malters (25), twelve bushels of corn, and full thirty bottles, or bushels of straw. The second division is sowed either with rye, beans, pease, or oats. The allowance three bushels and a half of seed an acre. He gathers from this eighty sheaves an acre, which yield annually at least five coombs of grain and forty bottles of straw. The third division remains fallow. Kliyogg has also some inclosures, which he sows every year. These are manured twice in three years, which he is peculiarly careful never to neglect, and constantly varies the grain every time.

His computation for ploughing is, a complete day's labour for two men and four oxen for each acre (26)

Pursuant to the custom of the country, he gives the first division three ploughings early in the spring, before the month of May, immediately after hay-

(24) Spelt, a kind of bastard wheat, which, in a good soil, becomes genuine.

(25) The Zurich malter contains four coombs of wheat. The coom is divided into four quarters or bushels, which, when pressed down, is about 125 pounds weight.

(26) This is a remarkable fact. I have, in a former note, shewn, that a Zurich acre is but a little more than three roods English; consequently this is very poor work for four oxen to perform, especially under the eye of so industrious a man as Kliyogg. I conclude from hence, that the beasts are very mean ones. I used oxen in Suffolk, and a single pair ploughed me an acre a day without any extraordinary exertion. They cost me 15*l.* a pair. *

season,

season, and at the end of harvest. The second division, if it does not interfere with more material business, and can be accomplished without great inconvenience, is ploughed twice; at the conclusion of harvest and before the commencement of seed-time. Light soils, says he, require to be lightly ploughed; and on the contrary, heavy clayey ground should be ploughed very deep, that the fine fibres of corn may insinuate themselves with ease among the particles of the broken clods; but in a light soil, we must endeavour to preserve sufficient solidity for the roots to strike. Wheat shoots strongest when there is an interval between the time of ploughing and sowing. Barley is most vegetative when sowed immediately after the plough. Light lands are best for barley, but wheat thrives best on a stiff soil.

Kliyogg likewise observes, that whoever is desirous of constantly plenteous crops, should be sensible how very essential it is, frequently to vary the seed upon the same ground. Thus he is indefatigable in the search of new; and is so thoroughly convinced of the importance and utility of this rule, that he affirms there is a very advantageous difference if he buys seed at a village only four leagues distant from his own. This remark is worthy the attention and investigation of some curious naturalist.

Our industrious labourer bestows on his arable lands a kind of manure, whose effects appeared singularly astonishing to me, when he took me into one of his inclosures a little before harvest. A third part of this field, from a deficiency of hands and leisure, had been that year neglected. I instantly perceived, though little accustomed to these minute observations, a very sensible difference between that part of the field which had been manured,

nured, and the other. Kliyogg imputed this difference to be one third loss in the crop. The manure he made use of, was a small gravel of a greyish hue, that supplied the want of marle, when compounded with a fertile brick-coloured sand, natural to the soil. Kliyogg discovered veins of gravel running along the sides of some barren uncultivated hills in the neighbourhood, commonly on the superficies, or a very few feet below it. In loading his carts, he throws aside large stones, strewing the fine part on light lands. This is one of the occupations on winter days, which the generality of husbandmen devote to indolence, or at least to domestick engagements of small advantage. The deep snow that covers the ground during great part of the winter season, greatly facilitates his work by the use of sledges, and considerably lessens the fatigue of the oxen. I saw him last winter in high delight at the appearance of a settled frost, which gave him hopes of a good road for sledges for some weeks. There seems a great analogy between the operations of this gravel and those ascribed to marle, if they are not indeed the production of marle itself which is discoverable among the small particles of gravel. Kliyogg apprehends the salutary effects of this species of manure arises from the heat communicated to the earth: he also attributes to it the virtue of extirpating baneful herbs, and particularly a kind of *pædiculaire* (*ribis-nanthus crista galli*, *Linnaeus*), a plant so destructive to barley, that when it gets the mastery in a field there is little corn to be reaped.

By the assistance of this manure, Kliyogg has converted the worst land imaginable into excellent corn fields. He lately bought near an acre of sterile ground for 4*l.* 14*s.* 6*d.* and hopes to make it worth 21*l.* 17*s.* 6*d.* within a few years: a thing
by

by no means improbable, as he has already given specimens of equal improvement, on soils that had been judged incapable of fertility. Alterations so astonishing, prove, in a forcible manner, how much foundation there is for his assertion, that we ought to attribute it to the laziness and unskilfulness of the peasants, if our country does not produce even a superfluity of corn!

Dressing lands with fine gravel is not a new discovery: the negligence of the peasants seems the only reason it is not more practised. These alledge, by way of justification, that they will not pretend to dispute its efficacy for a few years, but after a certain term, the ground will be as much, or rather more impoverished, than it was originally. We freely grant the operation of this manure to be limited to such a period, when it ought to be renewed, or some other substituted in its place: but is not this the case with every improvement in husbandry? It is only as the reward of constant and diligent labour, that the earth yields her treasures to man. Kliyogg supports all his arguments on this principle, which has never deceived him. The fortunate success with which heaven has blessed his industry, encourages him, with assiduous application, to draw fresh proofs, rationally deduced from new experiments in agriculture. The effects of gravel lead to this general maxim, that every species of earth may be instrumental to the improvement of another of opposite qualities. The discovery of a stratum of earth hitherto unknown to him, is as great an acquisition in his eyes, as a purse of gold in those of a miser.

Kliyogg has still another method of culture in his arable lands. He beheld with regret, the custom of raising high ridges, or banks, to prevent inundations over the corn, whose steep slope occa-
sioned

sioned the roots to be overflowed in the furrows between, which had a very bad effect. To obviate this double injury, he changed these banks into covered trenches, about two feet in depth, which he filled half way with large stones, covered with pine branches, and spread over with the earth taken out of the trenches. In this manner he regained so much lost land, which produced as good corn as the rest of the field (27).

By a process nearly resembling this, he has made a very fine hemp field of a piece of ground situated in a bottom, on the side of a great road, which, after heavy rains, was constantly overflowed by torrents, and had been given up as unprofitable. Our wise cultivator has appropriated a pretty large inclosure to the culture of leguminous seeds, such as French beans, pease, cabbages, &c. These kinds of pulse suffice for the maintenance of his family during the greater part of summer; a branch of œconomy that distinguishes him from the peasants of that country, who, excepting beet, cultivate very little vegetable food, which obliges them to consume a greater quantity of bread and flour, and diminishes, in proportion, the only means they have of procuring money. To lessen, in some measure, the expence of improvement, his children are entrusted with his kitchen garden; an easy task, adapted to their strength, which will train them gradually to the performance of more toilsome work.

(27) This is the famous method of draining all sorts of wet soils in England. I do not remember meeting before with any mention of them in the French authors. It is very extraordinary that this peasant, enlightened only by nature, should unite in his little farm, so many of the best practices of European husbandry! *

I passed

I passed over in silence, his method for the culture of turneps after rye-harvest; nor shall I expatiate on his manner of pruning fruit-trees, as in these two articles there is nothing uncommon; but I ought not to omit his rules for the culture of potatoes, as he is the first man in the village who has made them an essential object of œconomical attention; the other peasants are satisfied with having some beds of them in their gardens. The excellent properties of potatoes and their great utility, have given them, in the opinion of Kliyogg, a very decisive preference over all other roots. One acre produces two hundred bushels. The daily consumption in his family is one bushel, and his œconomy in this article saves a coomb of corn in the space of three weeks. Thus he computes that twenty bushels of potatoes are equivalent to one coomb of corn. According to this calculation, an acre planted with potatoes, is as profitable as ten coombs of corn; whilst an acre of the best land will scarcely produce four malters of spelt, which at the highest price, and in the best years, is about the value of six coombs of wheat; consequently the comparative value of an acre of potatoes to an acre of corn, is, as ten to six: a very essential difference! We may likewise add, that this root remains in security under ground, exempt from those dangers which plants and grains are exposed to from the variations of seasons. Neither the nipping frost in spring, snow, nor hail, that so frequently disappoint (28) and destroy the labours of

(28) Yet there are instances where a hail-storm has injured the green stalks above the ground, before the potatoes were arrived at a certain degree of maturity: which, by preventing farther growth, entirely destroyed the crop:—but this is very rare.

the husbandman, can injure the growth of potatoes. In promoting their culture we find a new resource against national alarms, from the well-grounded hope that a more enlarged and practical knowledge in rural œconomy, may, by degrees, release us from that dependence on our neighbours, the unavoidable consequence of necessity. Let the culture of potatoes once become general, the industrious peasant will procure, from a very small piece of ground, a comfortable subsistence for his family; nor will he be liable to disappointment even in unfriendly years. He will cultivate, within a trifle, the same quantity of arable land, and will be able to carry to market the profits of his harvest almost entire; whilst, before this discovery, he expended a very considerable part in his household. This advantage is so manifest, that the culture of potatoes is already common in many districts of Switzerland, particularly in those whose vicinity to the Alps exposes them most to the inclemency of winter. I apprehend it will not be thought a useless process, if we enter into a circumstantial detail of Kliyogg's husbandry in this essential branch.

When he has selected a proper spot of ground, it is prepared in autumn by ploughing, after first spreading some tumbrels of marley gravel, especially if the soil is subject to pernicious weeds. Towards the following spring, he lays on ten loads of manure an acre, and ploughs a second: he then sets the potatoe in the furrows, two or three together, leaving a foot's space betwixt. The very large ones may be cut in pieces. His allowance is ten bushels an acre. Thus planted, the field is covered again with manure, and left in that state fifteen days, when it is harrowed over. A dry season is judged best for planting, it is more likely
to

to kill the weeds, for the success of potatoes chiefly depends on the assiduity of the husbandman in clearing the ground of noxious plants. For this reason, great attention is required when the leaves of the potatoe shoot half a foot above the surface, to have it carefully weeded. When this is done, Kliyogg waters it from his pools. If a fresh crop of noxious plants arises, there is a second, and sometimes a third weeding is bestowed. In the autumn, about a fortnight after seed-time, the potatoes are drawn out of the ground. He begins to gather in his harvest by mowing the tops close to the ground: if this can be done a month sooner it answers better, in supplying the cattle with wholesome and well-tasted forage (29). The ground is then stirred with a pitch-fork to loosen the potatoes, which are gathered in baskets, and then carried home in sacks, where they are kept in a cellar to shelter them from frost: for potatoes once frozen rot when a thaw begins. They may be preserved likewise in trenches in very dry soils as turneps are, using the precaution to put straw over, and then to earth them up. When the crop is carefully got in, tillage is repeated, and in following the plough, a great number of potatoes that lie in the ground are gathered up. It is then sowed with barley or rye, and when the harrow passes over, there is a second gleaning of potatoes, which are still numerous. Nor is it possible the utmost care can prevent many from still remaining, which must be drawn out as soon as the tops appear. Kliyogg is convinced by ex-

(29) However wholesome it may be, it is by no means well tasted: and I know from experience, that cattle, while they are supplied with the common sorts of food, will not touch them. *

perience,

perience, that the crops of rye are as good sown after potatoes, as in fields where there has been only corn. The same land may be allotted the third year either to potatoes or wheat. Kliyogg gives the preference to the former, and approves of planting them alternately, in all his corn-fields, from a conviction that the culture they require contributes greatly towards meliorating the ground by the extirpation of baneful vegetables; and that varying the productions encreases the fertility.

Kliyogg, as I have already observed, allows his family a bushel of potatoes a day. They are boiled till soft, and brought to table, where each person peels his own share, and eats it with salt: sometimes they stew them with meat, taking care to pare them first, as the cows and pigs find the parings very wholesome. Our husbandman determined to try if bread could be made of potatoes, but had no success whilst he used no other mixture; but with the addition of some of the flour with which they made household bread, they answered his purpose: his method is as follows. Pare and cut them into the kneading-trough; pour in boiling water enough to cover them; bruise them till thoroughly smooth: neither time nor pains should be spared to perfect this operation, because it is essential to the making of good bread, that there are no lumps. They sometimes take equal parts of mashed potatoes and common dough; sometimes a third or fourth part: the bread must be exceedingly well kneaded, and is then very excellent. Nor is it found less nourishing or invigorating to the constitution than when made entirely of corn. Kliyogg dried some potatoes in an oven, and then had them ground, in order to see if the flour would make bread without corn, but the experiment

riment has been hitherto unsuccessful (30). To finish the circumstantial description, I purposed giving of Kliyogg's husbandry, there still remains an account of the pasturage and woods.

Pasture ground, in this country, is scattered amongst the woods in detached pieces. The soil is in general extremely bad, so that the cattle find but little sustenance from rattle-grass, milk-thistle, and fern. There is great probability that these spots of ground were formerly covered with wood, which has been felled, and according to the pernicious custom, too prevalent in Switzerland, cattle were immediately turned in to feed. Thus the tender shoots that would have sprouted again, and thrown forth fresh branches, have been nibbled and broken down by the beasts, till, by degree, the sap became totally destroyed, and these waste grounds have been appropriated to pasturage. I have taken notice of the small advantage to be reaped from them, when I mentioned the application of Kliyogg in augmenting his compost dunghill. He at first treated his pastures like other peasants, sowing them with wheat or barley every sixth year, and every seventh with oats; at all other times the cattle grazed there; but he was soon sensible, that by persevering and assiduous labour, a much more considerable advantage might be gained by turning them into fruitful corn-fields.

(30) Potatoes are one of the most valuable presents we have received from America. They furnish the country people with a pleasant, wholesome, nutritious kind of aliment, favourable to population. A great part of German Lorraine find them a constant support; and the villagers there are stout, well made, and of exceeding robust constitutions. I have seldom seen distempers amongst soldiers, when they had potatoes to boil in their kettle.

The practical part was a long time obliged to be omitted for want of labouring hands, and the greater proximity of his other grounds presented so many immediate objects of cultivation, that he could scarce devote a moment to his pastures. It is only since his children have made a beginning to assist him, that he has applied his industry towards their improvement. The first step is digging a fosse about three or four feet broad and two or three deep, casting the earth from it in such disposition as to form a kind of parapet bank, which remains two years in that state, exposed to the weather; it is then made use of to spread on the most barren spots of the pasture, and to fill up small inequalities of ground: where there are large holes he fills them with stones before he covers them with mould. The land is then dressed with gravel and manure according to the rules observed in his corn-fields, and is so amazingly improved, that, in general, it affords the best crops he has. One of these pastures he made choice of for hemp, and it is well known the best soil is always selected for that purpose. He delights more in this part of his estate, because he is at free liberty to farm it as he pleases, without those restrictions that confine him to established customs in the culture of common fields, dependent, in some respects, on the village of Wermettschweil.

Five acres of pasture land are set aside for planting, which lie most contiguous to his woods. He leaves to nature the care of sowing pines and firs, not having been able to gain proper information in regard to planting trees. A species of knowledge which our country is unfortunately little acquainted with. Woods in Switzerland are regarded as wild uncultivated spots self sown, which require no other care and attention than to cut them

them down at a proper age. To this false prejudice, the offspring of indolence and ignorance, we may attribute that scarcity of wood for fuel, which is more sensibly apparent every day. I remarked just now, that the pasturage dependent on the village of Wermetschweil, had its origin from new-felled parts of the forest, which the cattle had rendered incapable of bearing wood by wounding the young shoots. To the same cause is owing those desert tracts, sometimes of considerable extent, which are to be met with in our forests, in places where the soil and exposure are remarkably favourable. Happy should I be, were I capable of awakening the attention of my countrymen to an object so essential to public utility, whose neglect will, in time, infallibly be productive of ruin.

Kliyogg bestows a kind of culture on his woods, but with a view very different from what I speak of. His prime motive, as evidently appears, is the increase of manure; for which purpose, he collects, with the utmost industry, small branches of pines and firs, dead leaves and moss. It is with this view also he carefully roots out all destructive plants, unloading the young trees from time to time of supernumerary foliage, branching them pyramidically almost to the crown; a method which contributes, in no small degree, to accelerate their growth and augment the beauty of their trunk. The neighbouring farmers reject this manner of treating trees as extremely prejudicial, but Kliyogg troubles himself but very little about their approbation so long as he is convinced his pines and firs are equal, if not superior in growth to those of his neighbours. It must be allowed, that, on the first view, his woods appear thinner, from the openings visible between the trunks where the

branches are taken off; but after a more accurate examination, I found his opinion well founded. I did not see any young firs that seemed withered and decayed, though the branches of all were considerably lopped: he made experiments some years since how far he might carry the operation with safety: he reduced the branches of so many trees as the compass of a quarter of an acre afforded, leaving only three knots on any; the trunks were from six inches to a foot in circumference. He did not lose more than four; the rest were, honestly speaking, a longer time than usual in making their shoot, but this was greatly compensated for, by the extraordinary vigour of the appearance that followed. It did not escape the observation of Kliyogg that every year produced a new head to the fir-tree till arrived at perfection; from thence he inferred that the lower circle might be taken off every year without injury to the tree; and that if pruning had been omitted several years together, the same number of circles might be taken off with confidence (40). I know this practice is contradictory to the generally established theory of the vegetation of trees and the experience of the most distinguished naturalists of the present times; such as Hales, Bonnet, du Hamel, who have demonstrated that trees receive their principal nourishment from the humid particles with which the air is impregnated, and which the leaves draw in by suction. Yet the success of these experiments made by Kliyogg, seems to point out one exception

(40) This method of pruning fir-trees I have before heard of answering greatly; but how Kliyogg's pruning his woods for manure can be advantageous I can conceive only by supposing the Swiss woods and our English ones totally different.

at least, in favour of such aromatic and resinous trees as have pointed branches instead of leaves, which may be pruned with less hazard than other woods. I acknowledge there has not been sufficient time for a course of experiments capable of being placed in opposition to maxims hitherto deemed incontestable; but at the same time I cannot help thinking that the opinion of a man, who displays in so many instances the most judicious discernment, and whose observations are so totally free from prejudice, merits a degree of attention which may serve to animate us in the pursuit of more ample discoveries (41).

Thus

(41) The reader, perhaps, will not be displeased with observing the agreement between what is said above, on the nature and culture of trees, with some passages drawn from the article *arbre* in the *Encyclopedie*. “The roots of trees, and even of plants in general, are analogous to the stomach in animals. It is there the first and principal preparation of the sap is formed.

“The culture of a tree, by pruning away part of its branches, contributes more than any other method of industry to their luxuriance; so that it may be truly said, the more limbs they retrench in vegetable life, to a certain point, the more they multiply. Those who have never seen a tree entirely stripped of its branches to the very root, will consider it in this mangled state as incapable of recovery, and fit only to be hewn down: yet if an oak, an elm, a poplar, or any tree, whose roots rise in a perpendicular direction, is stripped of its branches from top to bottom, it will throw out from the amputated parts near the top, an infinite number of buds, which bursting into leaves round the head of a tree thirty or forty feet in height, form a stately crown of thick branches that almost conceal the body of the tree. In the same manner, a person who first beholds a tree that has lost its head by a hurricane, or an ax, close to the neck of the branches, would naturally conclude for six months after, that it was a dead trunk, whose vegetation could never be renewed. But how great the surprize to observe a tree in these circumstances shoot-

Thus far may be affirmed with certainty, that the roots supply the tree with a vast collection of nutritious juices which are communicated through proper tubes to all the branches, whether their number be great or small. If, then, according to the method proposed, the number of branches are considerably diminished by annual prunings, this collection of sap will be employed almost entirely to the benefit of the trunk itself (42); and a tree that is pruned with discretion at a proper season, will encrease in size. I observe farther, that the effect of a constant attention to clearing the soil from weeds, is, the trees throwing up a vast number of suckers; whereas in the same soil, when covered with moss and briars, the young twigs are so entangled it is impossible they should make their way; and these suckers furnish a perpetual supply of materials proper for manure, so that he regards his woods as resources so much the more valuable, as he draws annually from every acre two load of litter for his stalls.

The more attentively I examine the æconomical system of our rural philosopher, which I have endeavoured to explain, the more I am confirmed in

“ing forth below the wounded part, a profusion of young
 “branches that form another head! This shews the almost
 “inexhaustible resources of vegetable nature! For it may
 “be confidently asserted, that from the extremity of the
 “branches to the root of the tree, there is no perceptible
 “space that does not enclose a portion of embryo life ready
 “to appear, whenever the situation of the tree requires an extraordinary exertion of the secret springs of vegetation.”

(42) Ergo, cut a man's arms off and you will encrease his height amazingly! In theory, and according to my observation, all this reasoning is false. How comes it that pollard trees (those whose heads are regularly cut off for faggots) do not near equal, even in girth, good timber ones? Even the size they do attain is deformed and odious. *

my

my opinion, that if we are not supplied at home with corn for our subsistence, it ought much less to be imputed to the sterility of the soil, than to the false maxims introduced, co-operating with the sloth and inattention of our husbandmen. I conclude farther, that the heavy weight of debt which many of the peasants sink under, is not an insurmountable objection to the re-establishment of agriculture. We have seen in the instance before us an estate, where appearances denounced ruin and decay, with few natural advantages, and loaded with a considerable mortgage: yet in a few years we see this very estate improved to a height almost incredible, yielding very near double the crops of corn and hay it formerly produced. Some of Kliyogg's neighbours, who are far from being partial in his favour, have assured me, that when he engaged in his undertaking, the lands which appertained to him were ranked among the worst; and that now in proportion to their extent they always produce the finest crops in that division. They likewise regarded his enterprize, as I have before observed, as the most rash imprudence which could not fail, in a very short time, of involving the two brothers in destruction, whom they expected a statute of bankruptcy against every day. This conclusion was not altogether the result of envy, which is ever ready to calculate the possibility of another's ill fortune. I am greatly mistaken if all indifferent persons would not have pronounced the same sentence on the following question. Whether a family, consisting of four parents and eleven uneducated children, could be comfortably supplied with the necessities of life from an estate valued at scarce 875 *l.* which must pay annual interest for 547 *l.* 6 *s.* A question that the event has, however, determined in favour of the proprietors,

thanks to the activity and wisdom of this extraordinary man.

I will endeavour to render the fact still stronger by calculation, in hopes of exciting, as far as I am able, the emulation of all good farmers.

Fifteen acres sown without, produced 1500 sheaves, which afforded sixty bushels of unwinnowed corn; or fifty-six malters four bushels

l. s. d.

The price of wheat in Switzerland is at least 17 *s. 6d.* the malter; so that the whole product amounts to (43) - - - -

48 4 4

Fifteen acres sown with rye, at five coombs an acre, yielded seventy-five coombs, which, at 8 *s. 9d.* the coomb, is - - -

32 16 3

Total reimbursement - -

81 0 7

The tythe of sixty bushels of wheat amounts to - - -

4 18 6

The tythe of seventy-five coombs of rye is - - -

3 5 7

Nine malters, six bushels of wheat for seed, allowing ten bushels per acre - - -

8 3 9

Carried over 16 7 10

(43) As I am unacquainted with these measures, we must consult the proportions. These fifteen acres are about $10\frac{1}{2}$ English, which producing 48 *l. 4s. 4d.* is at the rate of 4 *l. 11s. 8d.* per acre: a considerable produce for so small a farm to yield; but we must attribute it to the industry of its excellent cultivator and his ample manurings. The rye is 1 *l. 3s. 6d.* per acre, which is a good crop. *

Thirteen

THE RURAL SOCRATES. 265

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Brought over	16	7	10
Thirteen coombs of rye, allowing three bushels and a half per acre	5	13	9
Interest of 547 <i>l.</i> 6 <i>s.</i> at four per cent.	21	17	6
Rent of a meadow - - -	4	10	3
Seven loads of stable manure, and six tons of turf ashes - - -	2	3	9
Total expence - - -	50	19	1
Clear profit - - -	30	1	6

If I have omitted the wheel-wright, the collar-maker, the farrier, in the article of expence, I have likewise omitted the profits arising from the waste ground converted into good ploughed land in the article of reimbursement; which, as I have already observed, produces corn, potatoes, hemp, and a variety of leguminous plants for the use of the table. His orchard likewise supplies him with fruit, his cows with milk and butter, his hogs with bacon. An accurate examiner of this estimation will observe, on the other side, the apparent hazard to a husbandman of unavoidable ruin, by engaging in the improvement of an estate so badly circumstanced, had he not been endowed with an uncommon share of intelligence and activity. These waste and uncultivated fields had scarcely afforded, in the most plentiful years, to an idle unskilful farmer, the moiety of Kliyogg's harvest, whilst more money had been expended for the payment of labourers, than, according to the above calculation, he received in profit. The surplus of the year is always employed in the continuation of improvements, or in new acquisitions of land. This he regards as a more advantageous method than liquidating

liquidating the mortgage upon his estate, as he can make much more interest by employing 4 *l.* 7 *s.* 6 *d.* in agriculture, than the four per cent. he pays (44); and he considers the reciprocal convenience it is to a rich citizen to have his money on good land security. The only anxiety he feels is, lest any accident should interrupt the regularity of his annual payments. Sensible that the time approaches, when the health, strength, and vigour of his children will lend assistance to his labour, all his plans tend towards aggrandizing his estate, that his posterity may, by his example, be animated to procure, by indefatigable industry, an equal share of good fortune, and as perfect contentment of mind as their ancestor enjoys.

What is most amazing, and merits our particular attention, is, that all these improvements are effected with so few hands; a family of four adult persons, two of them women, who have few hours to spare from domestic employments, and the care of educating and working for their children! An inference naturally arises, that poverty of soil is not the necessary consequence of want of inhabitants. It is not the deficiency of labouring hands,

(44) This maxim of conduct, which is so very unusual in economical minds, shews the strength of Kliyogg's ideas. It is the misfortune of those who see an object but in one light; who regard the paying of mortgages as the first aim, to apply their money, to an interest of four or five per cent. when they might easily command ten or twelve. The one, it is true, is an uncertain, the other a certain income: but how come spirited improvers, manufacturers, merchants, &c. to trade on borrowed money? Not because such a conduct is totally free from objections, but because the advantages more than balance such objections. That mind which beholds nothing but difficulties and objections is mean and contracted: it is an habit that marks a little soul. *

but

but the progress of sloth and indolence which ought to alarm our fears: it is this which induces the idle part of our people to prefer the less toilsome, but more precarious works of the manufacture to the rough, but more manly exercises of the husbandman. The extravagant dissipation of the wealth of our artificers affords another source of calamity which is daily augmenting.

We must necessarily conclude from these considerations, that before agriculture can be brought to perfection in this canton, a thorough reformation of manners must be introduced. When the administration by their zeal and solicitude for the welfare of the state shall find their patriotism rewarded, by rekindling in the breasts of the peasants a lively ardor for rural occupations, it will then be the proper time to think of adopting the new husbandry, and exchanging the ancient modes of cultivation for a more perfect system, established on experimental demonstration. Our philosopher Kliyogg is invariably of this opinion. "You cannot conceive, Sir," he often repeated, "how many grievances would be redressed, if the government and the labouring hand mutually concurred in promoting the general good. Our estates want only to be cultivated with more understanding and industry to supply a sufficient quantity of corn for our use; but unfortunately we err greatly in our sentiments on this subject. The peasant is seldom enlightened enough to discern his real advantages. It must be then from the magistrate, who is appointed by the state to watch over the good of the community, that we can hope for relief. It is they who should prescribe to cultivators the best methods of husbandry, and exert the authority lodged in their hands, to oblige the idle to work or punish
" their

“ their obstinacy. The public officers should at-
 “ tentively inspect the conduct of every individual,
 “ leading back to their duty such subjects who
 “ have deviated from it, by reprimands, menaces,
 “ and salutary correction. The clergy might be
 “ peculiarly instrumental in this laudable work,
 “ would they be only more assiduous in admonish-
 “ ing their parishioners, either from the pulpit, or
 “ in their pastoral visits, to the uniform practice
 “ of the duties of christianity : would they incul-
 “ cate without ceasing, that the essence of piety
 “ consists in exactly performing towards our neigh-
 “ bours what justice dictates, or in other words,
 “ to render to every one his due. These gentle-
 “ men have commonly a great deal too much
 “ learning in their sermons. They amuse their
 “ imaginations with tedious explications foreign
 “ to the text, which the bounded ideas of the pea-
 “ sant are incapable of comprehending, instead
 “ of informing him in the most perspicuous and
 “ simple manner how he ought to regulate his
 “ conduct. Hence it follows, that the villagers
 “ (far the greater part of them) imagine they have
 “ fulfilled all that religion requires, in going to
 “ church, saying their prayers, and singing of psalms!
 “ and that they may indulge themselves with im-
 “ puny, in luxury (45) of apparel, and excessive
 “ gluttony in eating and drinking. They begin
 “ by dissipating their patrimony, and end by de-
 “ frauding their neighbour. There is, in my
 “ opinion, ten times more evil in cheating a man
 “ of a single farthing, than in omitting to hear a

(45) Many readers may be surprised to hear peasants ac-
 cused of luxury in apparel, but those who have been in Swit-
 zerland, are sensible how much the women, in some districts,
 particularly the unmarried, merit this reproach.

“ sermon.

“ sermon. None have a right to expect a bene-
 “ diction from heaven but those whose faith and
 “ probity are irreproachable, and their industry
 “ indefatigable, who earn their bread by the sweat
 “ of their brows! A diligent husbandman does not
 “ know what a bad year is, nor suffers the sere-
 “ nity of his mind to be ruffled by storms and
 “ tempests. An indolent one, on the contrary,
 “ expects all from Providence, and complains of
 “ the partiality of fortune, because his harvest is
 “ worse than his more industrious neighbours.
 “ The bailiffs of the district, ought, on their side,
 “ to enforce corporal punishments and pecuniary
 “ mulcts on those persons who refuse to labour,
 “ notwithstanding the exhortations of the clergy.
 “ For this purpose, they should make frequent
 “ and regular circuits in their district, and ex-
 “ mine accurately the culture of the farms: they
 “ should distinguish and reward those amongst the
 “ subordinate husbandmen who give the most evi-
 “ dent proofs of labour and application, whilst
 “ they should treat with the utmost severity, such
 “ as are notorious for laziness and inactivity. Good
 “ God!” exclaimed he, “ what would be the
 “ prosperity of these cantons, if such measures
 “ were pursued! and what an abundant enjoy-
 “ ment we should have of all the necessaries of
 “ life!”

Kliyogg exercises all the duties of the master of
 a family, though he is the younger brother. He
 who has the priority of birth, has a sufficient de-
 gree of understanding and reason to acknowledge
 the superiority of his brother's genius and talents,
 and to resign, in consequence, the sole direction
 of every thing to his administration, satisfied with
 seconding that ardour and activity whose example
 appears so excellent. In admitting the system

Kliyogg

Kliyogg has formed of the obligations of the head of a family, few men would be tempted to envy him that honour. According to his rules, the master is the first to commence all sorts of work, and the last to leave them. The very essence of his authority consists in being a living example to every individual of his family. "Without this," says he, "all efforts are vain, all cares are useless; the master of a family may justly be compared to the root of a tree, which gives it life and strength: if the root ceases to vegetate, the tree, however healthy before, must perish with it." With what confidence can a master exact of his servants to labour with unrelaxed ardour, when he himself is the first to discover marks of fatigue and lassitude? With what expectation of obedience can he regulate and order the business of the day, when his labourer understands how to methodize it better? Such a master will be the sport, the jest of his domesticks; and if his ignorance is accompanied with obstinacy in the execution of his orders, however inconsiderate, to obey, becomes an intolerable burden. On the contrary, if the intellectual faculties of the master are evidently more enlarged; if it is he who sets the most industrious example, there will not be a servant in his household but will glory to emulate their master's conduct. I was requested by a particular friend, continued Kliyogg, to shew his servant my method of manuring with marley gravel. This lad, says he, does not want capacity, and is, as you see, strong and robust; the misfortune is, he does not always fancy himself able to work. I took the lad into the field with me; he shared my fatigue early in the morning, and worked close by my side late in the evening. He seconded my labour better and better every day, and I could not avoid

avoid admiring the dexterity and diligence of his behaviour. The next time I saw my friend, I could not forbear observing the great injustice he did his servant in accusing him of idleness, for I had never seen any body so remarkably indefatigable. He protested to me, on the contrary, that whenever he went to overlook his labourers, he always found him unemployed. Is he equally idle, said I, when he is to work in the same spot of ground with yourself? That is a point, replied my friend, I can't determine. I hire him to do the heaviest part of the business, in order to be exempted from too great fatigue myself: all that seems necessary for me to undertake is, to give proper directions, and to have an eye to their execution. You regard the rougher part of manual labour, interrupted I, as a painful employment? I at least think, said he, it is permitted us, when we are rich enough to afford it, to enjoy a reputable and honourable exemption from it. What difference would there be, were we denied this privilege, between opulence and poverty? And where would be the advantage that heaven has dispensed a larger portion of wealth? If this is your way of thinking, I replied, it no longer amazes me that your servant is idle during your absence, for, fairly speaking, is it not natural that every one should be solicitous to pass his time as comfortably as he can? But I find we think in a very different manner; I am never more satisfied and happy than when I am working myself: and I am quite a convert to your way of thinking, my dear Kliyogg, pursued my friend, from a sense that it is founded on reason! I will never, for the future, complaisantly listen to my wife's opinion, when she persuades me not to harass myself so much, tells me I have enough to live upon, and

am not under the necessity of shortening my days by hard labour!

Kliyogg no sooner forms a resolution, whose propriety and rectitude he is convinced of, than, with unconquerable firmness, he insists that all the family shall concur in it; and when he regards any custom as pernicious, or even of no real benefit, he obliges every body to reject and abstain from it. It is one of his principal maxims in farming to begin by extirpating all baneful and useless weeds before he attempts to mend the soil; otherwise, manure, instead of being advantageous, will only serve to multiply those spongy plants which suck all nourishment from the crop. On the same principle, he says, a house cannot make a decent appearance, where idleness, luxury, and dissipation are predominant. Till these are banished prosperity cannot fix her abode. From this persuasion he made use of the most vigorous efforts for exterminating all bad habits which had crept into his family. Many prejudices had he to encounter, many contradictions to cope with from wife and sister, whom he found great difficulty in convincing they ought to rectify domestic abuses, which long habit had, in some measure, rendered sacred; yet at length his fortitude triumphed over their resistance. The applause and approbation his æconomic improvements met with from some of the principal persons in the canton, contributed not a little to reduce to reason these intestine fermentations. At present concord presides at his board, and there seems but one heart and one will. So true is it that the encouragement with which government honours the subjects who distinguish themselves by useful discoveries, or beneficial examples, makes an impression on others, and induces them to endeavour at imitation.

Kliyogg

Kliyogg kept the only tavern there was in the village, from which there resulted, in appearance, considerable profit towards house-keeping. A more accurate examination soon convinced him this was a mistake: he shuddered, only at the thought of the bad impressions and dangerous examples his children would receive from the guests who frequented his house; the greater part of whom waste in a tavern that time which is most precious for work, wantonly dissipating the money which ought to be employed to the advantage of their domestic affairs, till their strength is enervated, their understanding and reason totally degenerated, so that they are incapable of applying to the occupations or duties of life. These reflexions led to a determined resolution not to allow any of his customers more wine than was necessary to recover and recruit the consumption of spirits occasioned by hard labour, or the fatigue of a journey: the sole use for which wine seemed destined by the Creator. He fixed, from his own experience, that quantity to a pint, and maintained his resolution with the most rigid exactness. Such a proceeding was very soon attended with the loss of the greatest part of his company, and with them the profit arising from his business. The two sisters, one of whom had been brought up in a tavern, were enraged with spite and resentment, and attacked him in very severe terms. We have always foreseen, say they, that your unaccountable singularity would prove the ruin of your family. The world has taken notice of it long, and the good part have prophesied that no luck would happen ever since you began to deviate from the customs of our wise forefathers! You see what fine effects your obstinate caprice has produced, in depriving us of the ready money we were daily receiving from our customers!

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ers! Is not this to take the bread from your children's mouths? Our poor little ones must soon be reduced to beg from door to door! Hope better things, good folks! replied Kliyogg, with a composed tone of voice, and a smiling countenance, examine all circumstances with deliberation before you condemn me. Have I ever refused my children any thing necessary to their happiness? I thank God for having enabled me to supply them with wholesome food and warm cloathing! We do not deny it, but as they grow older, will it not require more to maintain them? True; but their strength will encrease in proportion, and consequently the time is drawing near, when they will be able to assist in improving our estate. Are not the crops considerably larger than when I first entered into business? And is not it apparent that nothing is wanting but more hands to make a further augmentation of our income? We have no objection to that point. But why is the profit we draw from the tavern to be despised? that added to what you make by farming, would be a great assistance to the family. You omit in your calculation, said Kliyogg, that there must be one servant extraordinary to wait on the company, whose labour is entirely lost to the farm. We acknowledge that the article of husbandry may suffer a little; yet the advantage is far superior to the loss. I am ready to admit, said Kliyogg, that our advantage from the tavern is proportionably more lucrative than from the farm; yet can you believe that the money acquired by indulging the vices of our fellow creatures will be attended with a blessing? Are you deaf to the sad complaints which are poured forth incessantly by the wives of professed drunkards, of debauchees, who are the cause of their unhappiness? Does not every day afford instances of sons who

who have great wealth left them by their fathers, advancing, with hasty strides, towards ruin, and abandoning themselves to intoxication and sloth? Is not it reasonable to fear these unfortunate families plunged into misery, will cry aloud for vengeance against the infamous avidity of tavern-keepers, who have contributed to the dissipation of their wealth? There are, however, to be found, landlords who may be called fortunate, and who have acquired great wealth by their business. Acknowledged; yet how rare are the instances of their continuing rich to the third generation? Their children, insensibly accustomed to a libertine life, lose all inclination for industry; in accumulating riches at the expence of others, they grow imposing, and become extortioners: would you wish to expose your children to the like temptations? Would you wish that all the fatigue and trouble we have endured in the culture of our land should prove abortive? and that our children, corrupted by bad example, should be abandoned to careless dissipation, and expend more in one day than we could gain in twenty years by this unworthy occupation? Heaven forbid such wishes to enter our hearts! Yet no one ever asserted that these consequences must indispenibly happen. The probability is surely greatly in their favour. How innumerable are the instances of the contagion of vicious imitation! We must allow it. Suppose then you only admit the fact may happen, with what unceasing reproaches would your minds be depressed, for having been the cause of your children's depravity? Whereas, if you follow my advice, you will, in truth, amass less money, but our children, inured to labour, will be contented with the produce of their land, and the blessing of heaven, which will visit them as it has visited us!

Well then you must pursue your own course; we are always obliged to submit to your opinion, though we are sure you are in the wrong; but remember, if the event involves us in want and misery, you are answerable for it. Such was commonly the repressed resentment of that contradictory spirit which opposed the invincible constancy of our philosopher, who persisted in the wise resolution he had taken. The inhabitants of the village made it the object of their derision, and engaged one of their companions to open another tavern. This proved highly detrimental to the morals of the people, which grew worse daily; and many parents, distressed with the irregularities of their sons, complained to Kliyogg himself of the bad tendency of taverns, and that the money squandered there would reduce them to penury and ruin.

He discovered another cause injurious to the prosperity of families in the custom of making little presents to children by way of birth-day, or new-year's gift. These gratuities, said Kliyogg, habituate them early in life to private hoards by other ways than industry, which is sowing the seeds of laziness, that source of all evils: besides, presents on these occasions, consist of unwholesome delicacies, at least of superfluous ones, or expensive toys, of no real use. People are obliged to return these civilities to their acquaintance, and, however small in appearance such trifles may be, they amount to a sum in the end of the year, very often burdensome to a family. He made it a rule, from that moment, to receive no presents whatsoever for himself or children, from godfathers or relations; and never to make any, except to real objects of charity, such as persons whom age, decrepitude, or accident had rendered incapable of procuring a subsistence.

subsistence. He blames all those who bestow alms on worthless, undeserving objects, considers it as an injury to society, and that those who inconsiderately distribute their wealth in injudicious benefactions, render themselves responsible for the dangerous consequences resulting from them. These persons, says he, think to purchase by their alms a benediction from heaven, but they are too often an introduction to illicit practices, and by indulging beggars in laziness and idleness, encourage them to the commission of every sort of crime, such as theft, imposture, lewdness.

Of all the rules of conduct practised by Kliyogg, there is not one which has cost him more trouble in the performance than this. He has been accused of unparalleled severity towards his children, and branded with insufferable avarice and inflexibility to the poor. But, unmoved by all these reproaches, he persevered in a resolution whose rectitude he acknowledged. His children, it is true, never experienced the rapturous sensations which are excited by costly presents, but they are so much the more satisfied and contented with the enjoyment of what is necessary and convenient for their station. The first time I went to visit him, I was desirous of leaving a pleasing remembrance of me in the minds of his children by some trifling acknowledgments, and was a good deal surprised not to find in them the least inclination to accept my request. Their father desired, at first, that I would not give myself so much trouble; as I took his manner of declining only as a compliment, my offers were repeated; but he insisted still more vehemently that they should not be accepted. In vain I remonstrated it was right young people should now and then have proper indulgences, and that what I begged their acceptance of was, as far

as I could perceive, to be considered in that light. It is not, Sir, said he, with some emotion, the value of the money you wish to regale my children with that causes this repugnance, but my perception of the dangerous consequences attending these sort of gifts.

He exerted equal firmness in banishing those distinctions annexed to particular days; at his table there is no preference in good cheer given to Sundays or Festivals, the conclusion of hay or corn harvest, christenings, or country wakes. It appeared to him absolutely inconsistent with reason to allow the body more nourishment on days of relaxation than on days of labour, when the strength, exhausted by painful toil, has much more occasion to be recruited. He therefore regulates the food according to the nature of the work, and prepares his labourers not to expect any extraordinary feast at the end of harvest. This is not the effect of covetousness, he says to them, for I shall spend the same money that others do, but it shall be in maintaining you better every day that your work is most fatiguing. He drinks no wine at meals, but carries his pint with him into the fields, and uses it as a restorative, when he finds himself sinking under the burden of labour. He fattens hogs for the use of his family like other farmers, but pork is never a separate dish at his table, but a certain quantity of bacon is dressed daily, cut in small pieces, and strewed with some kind of vegetable; this he finds a more invigorating diet than when eaten fresh; and is of opinion that food the hardest of digestion, affords the greatest degree of nourishment: for the same reason he gives potatoes the preference to other roots, and rye bread to wheat. This conviction he draws from his own experience, which he cannot easily be mistaken in, as he labours

bours incessantly with equal alertness, and has constantly-observed that his strength is much sooner exhausted when he feeds on delicate meats than on those which are gross, and more difficult to digest.

But the first and most material object of his care is, the education of his children, which he rationally considers as the most sacred of all duties. He regards them as so many pledges entrusted to him by the Divinity, for whom he is to smooth the road that leads to true felicity, convinced that justice would be required should he direct them wrong. On this great principle of action he makes it his peculiar study to prevent the intrusion of all false and irregular desires within their tender minds. Observation has taught him that children imitate the manners and actions of older persons with whom they are daily conversant; and he apprehends that, by a due government of his own passions, he could avoid setting any bad examples before them if they could be equally preserved from the contagion caught from others. To prevent this evil, he is desirous to have them always with him, and insists that they accompany him as much as possible in the field, and take their share, in proportion to their strength, in every branch of husbandry. Thus he endeavours to give them an early taste for the choice of life he wishes them to pursue; leads them to adopt his way of thinking and acting, and hopes to inspire in their breasts that true contentment which he regards as the only foundation of happiness. Whilst by removing them, as far as he is able from other society, whose bad customs and depraved manners he has taken pains to banish from his own house, they are not exposed to the danger of imitation. This rock, on which so many split, prevents him from sending
 T 4 them

them to a public school, lest communication with unprincipled and ill-educated young persons in their walks and hours of recreation, should, by injuring their morals, make them too dearly purchase the the arts of reading and writing.

Kliyogg has undertaken to teach them himself, and sets some hours in the Sunday apart for this occupation. In consequence of the same motive, the brothers perform their duty at church alternately. One of them always stays at home, as well to preserve decency of behaviour amongst the children, as to hear them repeat the catechism, and give them lessons in reading and writing. The same motive influences our philosopher to forbid his children from partaking of public diversions, such as fairs, village feasts, &c. a prohibition that has, in truth, subjected him to censure, to be considered, as a sectarist, a rigid father, whose parsimony refuses his children the enjoyment of any diversion. You are excessively in the wrong, said one of his neighbours to Kliyogg, to treat your children so inhumanly by refusing them every kind of recreation! And who has informed you, said he, that I deny them recreation? Pray have not they as much health and chearfulness of countenance as your own? But do not you absolutely deny their appearance at all places where young people meet to be merry with propriety and decency? Have not you commanded your sons not to go to the tavern? Nay, it was but the other day, you refused to let your daughter accept an invitation to an entertainment, where she might have eat and drank, danced, and diverted herself like the rest of the world! My daughter had not the least inclination to go, she can dance and divert herself at home. Do you imagine that drinking to excess, or being immoderately merry, are the only things that

that give us satisfaction? Is there any higher gratification at a tavern entertainment than to supply the importunate demands of hunger and thirst? Can the mind exceed a certain degree of hilarity, without regret, in any place? No, certainly; but a little festivity at proper intervals, is of great service; we return to our occupation with fresh alacrity. Ah! my friend, I have observed, however, that when you have been guilty of irregularity at the tavern over-night, you were very little disposed for business in the morning! You complained of the head-ach, of want of rest, and regretted the money foolishly lavished away. I confess it; yet surely life is not intended to be a circle of labour, without including some hours of pleasure. Have you then no pleasure in cultivating your land, and beholding the happy reward of your industry? Undoubtedly the appearance of a good harvest gives me real pleasure. And have you ever felt the least disposition to repentance, after labouring all day, and performing the duties of your station? Never. Why then, my good neighbour, do you not give the preference to joys which are unattended with remorse, when set in competition with those that render you incapable of prosecuting your work, and have frequently been followed by repentance? I endeavour, whilst the mind is flexible, to inspire my children with an inclination for rational pleasure; it appears to me that I am securing their future happiness! In teaching them to shun those tainted pleasures you recommend, I hope to preserve them from that ruin which has been the consequence of depravity of manners in so many families.

The method Kliyogg uses to encourage his children to work by exciting their emulation, deserves to be taken notice of. Whilst they are too young
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to work with the hoe, or spade, he makes them eat their dinner upon the floor; but, from the moment they begin to be of some use in husbandry, he admits them to sit at table with the family. In this manner he teaches them to comprehend, that so long as man is incapable of labour, and lends no assistance to society, he can be considered only as an animal, who has a right to expect subsistence, but no claim to the honour of being treated as a member of the community. In other respects, he is peculiarly cautious of creating the least distinctions amongst them. He seems to love, with equal affection, his sons and his nephews, and instructs them with equal zeal and assiduity in the principles of virtue. It is only by an obedient and amiable behaviour that they can gain his friendship, or expect his caresses. His approbation is all the recompense they aspire to; and he has found the secret of making himself eminently beloved and revered by his children. They are accustomed, from their infancy, to gross food, such as is provided for the family, and he gives them as much as will thoroughly satisfy their hunger, avoiding carefully to excite them to luxury by feeding them, according to the pernicious custom of most peasants, with delicacies by way of reward. Thus they have no passion for what is called elegant eating, and are insensible to all the delights of the table except the pleasure of appeasing a keen appetite. Indifferent in the choice of diet, that to which they are most accustomed is the most pleasing to their taste, so that Kliyogg may, without any hazard, dispense with the trouble of locking closets or cupboards where he keeps his stores. This confidence extends to the box where he keeps his money, which is equally open to all the members of the family who are old enough to understand

understand its use, and are supposed to be equally entitled to a share. This communication of wealth occasions every particular to avoid, with the nicest circumspection, the slightest appearance of selfishness, and banishes from the heart an immoderate desire of riches; for they regard money as an instrument that supplies them with what is necessary for the wants of the family; and as they find themselves abundantly provided with all that can satisfy their reasonable wishes, no one entertains a thought of wandering in search of a better situation. This fact justifies, in some measure, the opinion that Kliyogg has imbibed, that their descendants may, in all probability, for some centuries, continue incorporated in one family. I have heard him expand this idea in a conversation with a friend of mine, in a manner so satisfactory, that I cannot forbear relating it.

My friend, who had acquired in a foreign service, the fortune his merit deserved, had not the less regard for his own country as a worthy citizen. Born with an exquisite and delicate taste for all that is beautiful or excellent in nature, he came to seek, in the bosom of the muses, a noble relaxation from military fatigue. The moment he heard of the fame of our rural Socrates, he conceived an ardent desire to be personally acquainted with him. I took the first opportunity to procure him that satisfaction. He was struck with the singular genius of the man, and said to him in an accent softened by friendship and frankness, I perceive, my dear Kliyogg, it is impossible to rank you too high in one's esteem. You have inspired me in a moment with the most sincere and uncommon affection: you have several sons, trust me with one of them and I will make his fortune in the army. I am infinitely obliged to you, Sir, replied Kliyogg, for
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your kind intentions, and I assure you I feel for you all the respect and regard that an officer of your rank, and what is more, of your understanding and probity deserves. But pardon my freedom, I cannot answer to my conscience to part voluntarily with any of my children before they have attained the age when reason is mature, and capable of determining. God has blest me with children that I might educate them to his glory, and use all my endeavours to render them happy: I mean, through the mediation and assistance of his Holy Spirit, not to fail in this sacred duty. Your manner of thinking, said my friend, is highly laudable; but have you so little confidence in my promise as to doubt whether I would be as conscientious in these articles as yourself? I undertake to acquit myself as your representative, and engage solemnly to do it with all the punctuality and fidelity of which I am capable. I believe you, said Kliyogg, but they are my children, and I stand bound in a personal obligation to be accountable for them to heaven, which I cannot, without a crime, dispense with myself, or confide to another. The duties, Sir, connected with your employment, will not admit of your bestowing the necessary attention my son's conduct may require; and with what facility will a young man suffer himself to be drawn into the allurements of vice, when he has the misfortune to fall into bad company! Do you think, interrupted my friend, there are no men of honour and virtue in the service? Only allow them as much probity and religion as any other profession, I am fully persuaded they abound in both, and have too striking examples before my eyes not to be convinced of it: yet it is not to be expected my son should always be so happy to meet with such; admit the probability that he may often associate

sociate with the dissipated part of mankind. I will guard him from it as much as possible, said the General. Whatever reliance I have on your goodness, Sir, replied Kliyogg, I beg leave again to observe, your station in life will not allow you to watch his conduct with the vigilance necessary to my tranquillity. My children are scarce a moment out of my sight; they always accompany either my brother or me through the whole course of country business, and on Sundays I pass my time agreeably, in reading with them, or singing psalms. Sometimes we walk over fields which our hands have cultivated, where I explain to them the different parts of agriculture, and remark with what singular liberality heaven has rewarded our labour. From this system of education they will escape the evil of bad example, so long, at least, as my own life continues irreproachable. I find, said my friend, your maxims of education very prudent and sensible; but you ought to consider you have seven sons in your family, who cannot always be kept at home: you must by some means or other endeavour to procure them some establishment; and on this supposition the army is not to be despised: many a brave man makes his fortune there with reputation. I acknowledge it, Sir; but I have a sufficient competency for all my sons, provided they always unite to regularity of conduct, that ardour for a rural life, which nothing ought to extinguish. This very estate, which has supported me hitherto, will support them and their descendants, if heaven thinks fit, when cultivated with care and industry. But surely happiness is to be found in other states as well as in husbandry. Indisputably it may, by those who have been habituated to them from their infancy, and have made them their constant study. Providence placed
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me in a farm: I have instructed my children in agriculture: they are ignorant of every thing else: their ideas, their prospects of happiness, are bounded to the blessing of favourable seasons for corn and hay, and enjoyment of the real necessities of life! The moment they enlisted in the army, they would find themselves transplanted into a soil, whose properties they were unacquainted with. The cares and fatigues attending a military life, would, to them, appear painful and disagreeable: whereas the hardships the husbandman is exposed to, are, from habit, become familiar, and submitted to with satisfaction. Would not the same thing happen in military exercises when time had smoothed their difficulties? A generous mind, that applies with zeal and solicitude to the study of any profession (no matter what), will comprehend it with readiness, and may be assured of becoming master of it. Be it so, Sir; but he would, at least, forget his first occupation, to which a variety of circumstances may oblige him to return! And, should this happen, could he resume it with the same ardour, the same alacrity? He will have contracted, in distant parts of the world, another system of life. His hours, his diet will be different; and, if unfortunately he knows not how to lay aside what custom has rendered a second nature, his house will be the seat of disorder. Sincerely speaking, it, to me, appears scarcely possible for any one to be truly happy but in that circle of life he has been early accustomed to. You would, in all probability, be much to be pitied, were you reduced to the necessity of dining on the coarse plain aliment, that furnishes me a continual feast. And I, on the contrary, should be equally so, were I obliged to conquer my disgust for your delicate ragouts and high sauces: I should not enjoy so
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good a state of heath, and should be far less contented than with my homely fare. It is the same thing in regard to labour. I have practised bodily labour, without relaxation, day after day : I am so much the more robust and disposed to work ; but if I exercise my mind long upon any abstruse point, it surpasses my abilities, and soon brings on lassitude and fatigue : in short, custom is all. If I am not mistaken in your opinion, my dear Kliyogg, that children should always follow the occupation of their father, the result of it would be, that in time, there would only be one profession in the world. And where would be the misfortune if there was not ? replied Kliyogg, with a smile. If agriculture was the universal employment of mankind, and every one found his support from the labour of his own hands, we should hear no more of treachery or violence. Peace, tranquillity, and contentment of heart would establish their residence on earth ! For I faithfully assure you, Sir, I have never yet met with the person with whom I would willingly change situation : nor have I ever, to this present hour, desired any thing I could not attain, or felt the slightest degree of inclination to covet the possession of what appertained to another ! But your sons, after all, can hardly avoid some embarrassment hereafter. Your estate (excuse my repetition of the question), can it be sufficient to maintain them all ? Yes, Sir ; the productions of the earth are always in proportion to the culture. I have long been solicitous to see my children of a proper age to assist me in bringing this farm to as high a degree of perfection as the land is capable of ; and when that is accomplished, there yet remains large tracts of waste ground in our neighbourhood which may be purchased for a trifle, and where they may undertake a new plan
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of improvement. There will always be a greater want of labouring hands than of materials to exercise them upon. But you are not immortal, Kliyogg, and your death may be the cause of separation among your children. When your fortune becomes divided, will they be able, with the small allotment assigned each, to continue their present way of life with comfort and satisfaction? It is precisely for that very reason they must not divide the estate, but use their united efforts to keep up its value. How is that practicable? there is no possibility so many persons should be actuated by the same inclination. Why not, Sir, when experience has taught them, that the life they lead renders them happy and contented, and when they have no farther wishes to gratify? From their infancy they will have been inured to labour. The profits of that will yield them an abundant supply of food and raiment; and knowing no other wants, their desires will necessarily extend no farther. Yet, surely the supposition is not very improbable, that in such a number some one, sooner or later, may aspire to a better manner of living, may sigh for more delicate food, or finer raiment; what then will become of this happy union? Those once habituated to a certain mode of living, and who find that mode constitutes their happiness, are not very likely to abandon it for another they are utterly unacquainted with, and which their reason disapproves. On this principle, I guard my children with the utmost circumspection from being present in any place that may tempt them to idleness, luxury, or debauchery. When early impressions are fortified by time, there is little danger of their ever being erased. I take all opportunities to convince them that vicious habits precipitate men into ruin, and, on the contrary, that true happiness,

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is the consequence of a regular and undeviating attachment to the obligations of humanity. We will take it for granted, replied my friend, that your maxims may be so deeply rooted in the mind and heart of your descendants as to annihilate all inclination towards a more delicate manner of living; yet there must be a contrariety of opinion in many articles, where the command can only proceed from one, and the rest must condescend to be governed. He who is the most industrious, rational, and intelligent man, has a natural right to command. Where there are no irregular desires to interfere, right reason will be easily discerned by the most limited understandings: if any vicious inclinations should venture to appear, he who exercises the authority of master will know how to suppress them in the bad, by having recourse to approved and long established regulations, and setting them an exemplary pattern of virtue and propriety. He will not exert the prerogative they have honoured him with, in exempting himself from sharing their toil and fatigue; and whilst he confines his ambition within proper bounds, and is satisfied with being considered as their representative, they will submit to his authority without impatience. Thus I have great cause to trust in the goodness of Providence that my posterity may long remain united and undisturbed, without a thought of dividing their patrimony, or a temptation to embrace any other profession (46). I submit to the
wisdom

(46) This conversation will undoubtedly appear tedious to many readers; but I apprehend, to persons of a benevolent turn of mind it will be interesting: yet a rational assent to what Klyogg advances, is, perhaps, not so easily obtained. We are apt to consider such a project as chimerical, and contrary

wisdom of your argument, concluded my friend; remain steady to your principles, they cannot fail

trary to what experience informs us of the nature of the human heart, and the diversity of tastes and dispositions. It is not, however, impossible to support, by similar instances, and to produce facts that so strongly corroborate the system of our rural philosopher, as the ordinary course of things seems to oppose. I shall relate one which I had from an ecclesiastic, respectable for his age, manners, and knowledge of men and books: he is related to the persons of whom he speaks, and visits them frequently. I shall transcribe, literally, from my common place book, the account I received of him, above a year before I knew such a man as Kliyogg existed. There is a family in Upper Provence, who are in possession of authentic letters of Noblesse, granted to one of their ancestors by Saint Louis, the time he was in Egypt; for having, as the patent certifies, saved the King and his army, then in imminent danger. This family live in an obscure kind of mediocrity, upon their own estate, it is true, but by cultivating it with their own hands. They are independent, but enjoy no other advantages above common labour. The eldest son always succeeds to the estate, and the younger branches, who leave the family seat when they marry, are paid a thousand livres. Their alliances are with simple peasants; and though their common way of life is in the rustic stile, they entertain their guests nobly with wild fowl, pigeons, and game. When they have been advised to avail themselves of the advantages annexed to the nobility, so ancient in its origin, and founded on such distinguished services, they answer, that they have always lived peaceably and contentedly in that laborious retirement, which was the extent of their wishes: that the jealous competition, inseparable from rank and riches, excited their detestation rather than desire. Their happy abode is, in reality, the seat of peace and innocence, candour, and purity of manners. What is still more extraordinary, not one of the descendants of this honourable family has ever deviated from the way of thinking of his ancestors. Those who are desirous of more public and more general examples, may find them in Josephus's account of the Essenes, a people, whose tenor of life may throw greater probability on the opinion of Kliyogg. See also in the Appendix, Monsieur de Mirabeau's first Letter; the Memoirs from the Count Treffan, and the Journal Œconomique.

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being attended with the most desirable consequences. Heaven will crown your perseverance with a blessing, and you will behold peace, concord, and affection reign amongst your latest descendants.

The brother of Kliyogg was last year, 1761, nominated by the community, master of the school in his village; an event, which our country philosopher regarded as very fortunate. He conceived an immediate hope of seeing his principles reduced to practice, and of communicating to his countrymen a share of that felicity he himself enjoyed, ever since the introduction of order and regularity in his domestic affairs. He came to participate his joy with me. Sir, says he, I am in actual possession of a species of authority, that will add weight to my remonstrances. You cannot think what influence authority has in promoting publick good, if we know how to exercise it properly. My first essay shall be on the children under my tuition, which will be attacking the evil at the root; for good seed can never make any progress, till the poisonous weeds are utterly extirpated. This operation is easy before they have acquired firm hold. I would sooner undertake to educate a dozen children in virtuous principles, than attempt to reclaim a single man from confirmed error.

Habit teaches men to regard as a valuable treasure, the vice they have been long attached to; and to treat as a dangerous innovator, him who ventures to attack established customs, however pernicious to the morals of the people. Kliyogg remitted to his brother the care of instructing all the children, and was so much more at liberty to pursue indefatigably, the labours of the husbandman: reserving to himself the singing-school; where he employed,

as is customary, the hours after supper, on Saturday. Vocal musick has ever been his most delightful recreation; and he has the notes of Lobwasser's psalms by heart; (47) whilst his brother has

(47) Claude Gondimel, a famous musician of Franche Comté, who was murdered at Lyons on St. Bartholomew's day, composed the music, for a poetical translation of the psalter, by Clement Marot, and Theodore de Beze. Lobwasser published soon after a German translation in the same measure, adapted to the music of Gondimel. The greater part of the Protestant churches still sing this music, which, without discovering any great science, has something solemn and harmonious. The French churches have substituted Conrat's version of the psalms, instead of that by Beze and Marot, though the former displays no extraordinary genius in poetry. The Swiss and Germans, still sing the words of Lobwasser, notwithstanding this language is more obsolete and unintelligible to them than those of Marot and Beze to the French. A proof that ancient customs are often preferred to common sense, is, that the version published about twenty years since, by M. Spring, professor of rhetoric at Basil, should not yet be adopted by all the German churches, though made to correspond with Gondimel's music, and superior even to the new French version. But on the other hand, the attention employed in teaching the people, particularly in country parishes, to sing with propriety, is worthy of observation. A stranger would be surprized to hear psalms in four parts, sung with judgment in a village church. The canton of Zurich is remarkable for good singing. I shall beg leave to transcribe a still more surprizing fact, related by the penetrating and ingenious author of "Essays on various subjects, interesting to politics and morality," which I fancy will not be thought inapplicable to the present subject. The discoveries of the learned, says that distinguished writer, whom my country honours, "would be useless acquisitions " if they did not extend to the proprietors of estates, and " were not made intelligible to the husbandman. For the " information of the labouring hand, accurate abridgments " ought to be compiled, explaining in clear and simple terms, " the first elements of agriculture, and the best practical rules " for melioration. These abridgments should be introduced into schools where the children of the peasants are educated.

has much less skill and taste. Kliyogg entered upon his office by absolutely forbidding his musical scholars to ramble about the streets after they left school, or to call in at the tavern. A prohibition that raised anew the clamour of the village against him. He was menaced on every side, but his

“ cated. A method that has been often recommended, and
 “ cannot be too often addressed to the consideration of the
 “ sovereign. Nor let it be regarded as a chimerical scheme
 “ impossible to be executed, to inform the minds of the com-
 “ mon people; experience proves its practicability. A Ger-
 “ man Prince, Ernest the pious, Duke of Saxe Gotha, entire-
 “ ly changed the face of his principality, not more than a
 “ century ago. Truly great by his political virtues, he had
 “ his people instructed by compendiums of every kind of use-
 “ ful knowledge, which were put into the hands of the pea-
 “ sants in all country schools; they were taught music and
 “ drawing. Though these institutions no longer exist in their
 “ original spirit and vigour, it is yet amazing to observe the
 “ different irradiations of genius in this and the adjacent
 “ circles. The villages have excellent music in all their
 “ churches, and there are few where it is not easy to assem-
 “ ble a band of peasants, capable of performing in concert
 “ the best Italian compositions.” This is not an imaginary
 fact: the author speaks from his own knowledge; and I have
 seen the act passed by Duke Ernest.

Since inserting the above note, I have been credibly in-
 formed, that at Wedischweil, in the canton of Zurich, the
 inhabitants have established a weekly concert: The per-
 formers are twelve peasants, who meet on an appointed day;
 and there are two hands upon the violin, whose execution
 would be pronounced excellent in a concert of the first ma-
 sters. At Tatlieken, a very small village, there is a har-
 monic society; and at Hottengen, another village in the
 same canton, they have a concert-hall, where vocal and in-
 strumental Italian pieces are performed with taste and judg-
 ment.

It is well known in Germany, that the peasants of the fa-
 mous village of Stroepke, dependent on the bailiwick of Zilly,
 in the principality of Halberstadt, have been long acknow-
 ledged the best chess players in Europe. So indisputable is
 the fact, that there is no species of knowledge the class of
 peasants are not capable of comprehending!

courage remained unconquerable. He shut his school against all who were refractory; anticipating any intention of theirs, by threatening to lodge a complaint with the minister of the parish; and, if his admonition was slighted, to have recourse to civil authority. Heaven blessed his endeavours; and his scholars, the only ones, perhaps, in the country, who deserve the name, walked quietly home from school every evening. He made them sensible, by degrees, of the ridiculous absurdity of the diversions at the carnival, on the eve of St. Nicholas, &c. He went farther; he extended his remonstrances to those in Advent; and put a stop, for the first time, to the indecent riot and disorder that had hitherto profaned the eve that preceded the birth of our Saviour. A very remarkable proof of the efficacy of steady perseverance in those who are intrusted with the execution of the laws. The better to ensure an observance of the new regulations he introduced in the school, he determined to bound his expectations of advantage within the very moderate salary assigned; and to refuse the smallest present whatsoever. It is our frailty and venality in this article, said he, that weakens the influence of the wisest regulations. Men offer to their superiors the flattering bait, and from the moment they extend their hands to receive it, those hands become nerveless and impotent, in repelling the progress of corruption.

Kliyogg has been peculiarly attentive to render his family as independent as possible, by making his estate produce, as far as is practicable, whatever is necessary for attire, as well as food. With this view, he has had one of his daughters instructed in weaving, and has appropriated a room for that employment. Yet he does not hold in high estimation the works carried on by a great number
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of the peasants, in manufactures of various kinds, where a small exertion of strength is required; and which, from their sedentary nature, relaxes their ardour for the rougher labours of the field, and diminishes their strength. The too great encouragement of manufactures will insensibly deprive the land of proper culture, and consequently occasion the ruin of agriculture!

He is not, however, for absolutely rejecting manufactures, but regards them as very advantageous when under proper regulations: They afford subsistence to a great number of persons, who have no land to cultivate; and to others, whom natural infirmities, or the effects of disease, render incapable of the toils of husbandry. (48) Manufactories, said he, are to be considered in the same light as hospitals; these sort of establishments are an invaluable resource to the sick and decrepid; but when we receive into them the healthy and robust, we open a door to idleness, and are accessory to the destruction of our country. In general he weighs every side of a question, and considers it relatively to the influence it may have upon the genius or the manners: Thus an apparently great advantage would, in his estimation, be a real evil, if it tended to debauch the morals of the people. On

(48) Manufactures may be extremely detrimental to a country, by completing the ruin of agriculture, when from other causes it is hastening towards declension. But if the wisdom of government can promote the interest of both at the same time; if it can maintain them in perfect equilibrium, manufactures, far from depressing, will encourage agriculture by the encrease of the consumption. They are also auspicious to population; and an encrease of inhabitants will naturally be attended with zeal for culture. In China, under the mild influence of the wisest plan of legislature, agriculture, and industry, and a multiplicity of inhabitants unite in carrying improvements to the highest degree of perfection; such as we have but a faint idea of.

this principle, he sets very little value on the flourishing state of commerce; as he apprehends its most general effects are, introducing an inordinate love of money, debasing the generous sentiments of the soul, and familiarizing it with fraud and circumvention.

The uncommon fertility of the year 1761, considerably lowered the price of corn; the farmer, alarmed, broke into indecent and offensive murmurs. The most substantial amongst them refused to sell, and took measures to preserve their corn till the markets should rise. Kliyogg, so far from complaining, enjoyed a heart-felt satisfaction, that the poor labourer would eat his morsel of bread at a moderate price; he got rid of his corn at the current price, at the time he had been accustomed to sell it; convinced that it was better œconomy to employ immediately the small sum it amounted to, in the improvement of his lands, than hoard it up in a granary till a more lucrative opportunity. He often is shocked at the hypocrisy of those men, who on every bargain they strike, whether they may have over-reached their neighbour or not, make a parade of the benediction of heaven in their favour, and are always repeating, "God be praised!" The thanksgivings they affront the supreme Being with, are, in general, expressive of their insatiable avidity after riches, which are almost always acquired to the injury of others. The true manner of praising the Deity, is to be contented with what we have earned by industrious application, without envying the possessions of another.

Kliyogg recommends to all the members of his family, a constant attention to neatness in their dress, but forbids every appearance of luxury. The strongest, and least expensive stuffs and linens, are what he prefers. Extravagance in cloaths is,

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in his opinion, one of the most frequent causes of misfortune to families; and is, of all passions, the most ridiculous and irrational. When business calls him to the city, he wears a coarse grey furtout coat, with steel clasps; and this is to be considered as his holiday suit. His brother puts it on in turn, and it serves both for their journeys to the city.

As the grand pursuit in all his operations is to arrive at the end proposed by the shortest way; and as his native sagacity readily points that out, the most exact order and decorum prevails in every part of his house; and every utensil is placed in the very spot where it may be most convenient. This principle is not only the foundation of his œconomical system, (49) but serves as a guide to his moral conduct. Nothing appears to him more clear and determinate, than the ideas we ought to entertain of justice and honesty. Every man, says he, may read, indelibly written in his own breast, what he ought to act, or avoid, in such, or such circumstances. All that is required, when our interest happens to be in opposition to that of another, is to enquire within how we should wish to be treated in a similar situation; and to observe during the course of the proceeding, whether our heart is tranquil and satisfied. It is in self-approbation for having fulfilled our duty; it is in inward complacency resulting from such conviction, that true happiness consists. He discerns in the consequences naturally attending our actions, the recompenses or chastisements of an upright judge. In the same manner that plenty is the prize of as-

(49) Those, only, who have experienced how much a spirit of order facilitates, as well as accelerates all operations, can conceive how our cultivator has been able to accomplish, with so few assistants, the several tasks described.

fiduous and laborious toil, so peace of mind, and serenity of soul, are the reward of virtuous conduct. I never saw Kliyogg melancholy. Even when he has had recourse to my advice in illness, I always found him perfectly composed. His animated eyes, and a face whose freshness of complexion, denotes the vigour of his constitution, have always a smiling open appearance that discloses all the beauties of his soul, to a skilful physiognomist.

That soul has a very strong propensity to friendship, which he contracts with facility. Whatever ardour he has for labour, he quits it with pleasure when it can oblige a friend. He came one day to my house, when I was just setting out for Brugg, to pay a visit to Dr. Zimmerman, a physician (50), in that city, of whom I was infinitely fond; I knew I should procure this learned philanthropist, the most peculiar satisfaction, in presenting his penetrating genius with an opportunity of exploring the excellence of the human soul, in a state so nearly resembling that of nature. Kliyogg was unwilling to refuse my entreaties, to favour me with his company; though he had ten leagues to travel back the next day. However universal his benevolence to all mankind, he yet makes their zeal for truth, and the integrity he discovers them

(50) M. Zimmerman was a pupil of the celebrated Baron de Hallert; and, like that great man, united to a consummate knowledge in physic, very distinguished talents in all branches of literature. He wrote an essay on national pride; and we have few compositions in the German tongue that discover such profundity of genius or elegance of diction. This excellent writer has given more decisive proofs of his uncommon talents in a large work lately published upon experience in physic. In the opinion of a very able man, who is a competent judge of the subject, this book would do honour to a Boerhaave, a Hallert, or Van Swieten.

possessed

possessed of, the standard of his affection; and his penetration in these respects is altogether extraordinary. His conversation is entirely easy and unconstrained, even from the first moment of acquaintance; and he has a natural elocution that is very pleasing; and an ingenuous simplicity of expression peculiar to himself, which he cannot owe to imitation. To illustrate his meaning, he is often obliged to make use of comparisons and metaphors, which have always the most exact analogy to the thought he wishes to express. Though he speaks with facility and freedom, he is equally willing to be silent, if he finds he is not attended to with pleasure. He then devotes his whole attention to the discourse of the company; and his sensible, judicious replies, demonstrate that he suffers nothing to escape him. He seizes with avidity all truths the first moment of conviction, and does not reject any because of their novelty, till he has thoroughly examined their intrinsic merit; unless such as reason pronounces to be evidently false. In this particular he is diametrically opposite to most countrymen, whose hereditary prejudices may be regarded as part of their essence. No sooner has Kliyogg attained any beneficial discovery, than his spirits are on the wing to impart it to others; and he takes all imaginable pains to convince them of its utility, and to conquer their prepossessions. Never is Kliyogg more happy than when he happens to fall into a conference where the speakers discuss, with that energy which the real interest they take in the question inspires, on matters relating to the publick good. On these occasions, he delivers his thoughts with a noble frankness, and analyses the duties of every station with singular judgment; strengthening his arguments with comparisons drawn from rural oeconomics. He attacks the errors that
 offend

offend him with great freedom, but in a manner very remote from rusticity.

By this behaviour, he conciliates the esteem of all men of probity, who know how to value merit. I have introduced him into several companies, whose curiosity had been excited by the delineations I had made of his conduct and conversation. Nor have I ever met with any persons who, at the conclusion of his discourse, were not struck with amazement at his depth of understanding; and confessed to me, that my recital of his virtues had inspired them with admiration for a man so extraordinary; but that beholding and conversing with him, had raised that admiration to the highest esteem. I have known some persons peculiarly lavish in their encomiums, after having employed their keenest satire in throwing Kliyogg and his admirers into ridicule. Reiterated trials have convinced me that, in general, the regard paid to his character is in proportion to the discernment and integrity of the person who bestows it, which will explain why several of the most intelligent and virtuous members of the republick, find infinite pleasure in hearing his unprejudiced sentiments, on the duties of those who hold the reins of government. He traces before them, without intending it, the admired outline of their own way of thinking, and acting for the publick good. The distinction and approbation he meets with do not awaken in Kliyogg the least spark of vanity. Limiting all pretension to the advantages of enlarging and improving his ideas of men and things, by frequent conversations with persons of superior rank and knowledge, he preserves, invariably, his simple and natural manners. When I acquainted him with my intention of communicating his character to the world: If you think, said he, with an ingenuous smile, it will in any respect be the better for it, you are welcome; but

but whether men praise or blame me, I shall be neither better nor worse. Who would believe that envy does not cease to persecute this worthy being? Fortunately all its efforts only furnish fresh subject for praise. I was diverted one day with hearing one of the most rancorous of his neighbours exclaim, "That Kliyogg, says he, is no
 "better than a beast of burden; he is shortening
 "his days by hard working, and forces all his family to bear him company. His pretended discovery of the use of marly gravel, is a mere farce;
 "our forefathers were no strangers to it; but they
 "laid it on to a field but once, whilst this man
 "will be perpetually repeating it, till he has entirely ruined his lands." His crops then, interrupted I, are not equal to those of his neighbours? I can't say that. I even allow, that he gathers more corn than other people, though when he began farming, his lands were bad enough, but the soil must be worn out at last. You have seen instances where this has been the effect? Not absolutely so, but every one knows as well as I, that it must all end in smoke. And then he prunes his trees in such a way, that his woods will come to nothing. He has lost a great many trees, I guess? I am not certain how that may be, but I am sure his method must be a very bad one. What reason have you, friend, for being so sure of that? Why every body says so, and if it were not, many people would do the same. Have not you observed, let me ask you, that he prunes his trees only to a certain degree, which he finds will not injure them? That I am ignorant of; yet this Kliyogg is, in all respects, a very strange, unaccountable man; whose whole discourse is about making people labour, and work themselves dead.

However,

However, they say he does not allow himself much time to pray! But, tell me, is he guilty of the smallest degree of injustice? Or, do you hear many reports of his swearing, or flandering his neighbour? I cannot pretend to say I do; it must even be granted, that he is exactly punctual in keeping his payments at the time appointed. I do not recollect ever to have heard him swear, or speak ill of any man; but he tires you with the repetition of his methods of farming; and is mighty odd and particular in his way of thinking; for instance, he will not suffer his children to set their feet into a tavern, or partake of any diversion; and makes them wear the same cloaths on Sundays, and Festivals as on working days; he has the art of speaking so fluently, that there is no disputing against him. A near relation of mine, summoned him lately before a magistrate, about an affair that had provoked him to the highest pitch. He confessed to me, on coming out of the court, that he had been forced, in presence of the judge, to acknowledge that Kliyogg was in the right in every article, though he was convinced then, as well as now, that he was in the wrong; and that surely he must have bewitched his reason. Would to the Lord, said I inwardly, that all my enemies may have no worse things to accuse me of. I had no farther view in commencing an acquaintance with Kliyogg, than that of extending and elucidating my knowledge in rural œconomics. I rated my own abilities above the simplicity of a peasant, and meant to instruct him, by attacking and subduing any prejudices he might have imbibed, in the method of trying new experiments in husbandry, which I intended communicating to the society; who, at that period, purposed to excite,
by

by premiums, the most rational and industrious cultivators to put in practice such rules for the melioration of land as should be acknowledged best to answer that purpose. But what was my astonishment, to find in this villager, a man, entirely divested of prejudice! Endowed with a judgment as discriminating and penetrating as that of the most celebrated philosopher; and whose sentiments and will were absolutely subservient to the empire of reason! His turn of reflection, his words, his actions, are always in perfect harmony with each other. When he expatiated on the various duties of society, and the universal happiness attendant on their observation, I was struck with veneration; whilst I listened, my cheeks were moistened with tears, and I fancied myself transported into the company of one of the sages of ancient Greece. One day he found me in a very melancholy humour; I could not forbear expressing the anguish of my heart: he eagerly sought to comfort my depressed spirits, with all the zeal of friendship. My dear doctor, said he to me, in the course of a conversation on the nature of social obligations, when I see a man give evident tokens of inquietude and agitation, I conclude he begins to be dissatisfied with the former part of his conduct, and that he is thinking seriously of correcting his errors, and entering upon a new plan of life; when conscience is alarmed, and the soul a prey to gloomy reflections, there is great danger of our making an improper choice. How many are there who fancy they have done all that is required, when they pour forth a profusion of groans and lamentable exclamations! Who apprehend religion consists in wearing out their knees in prayer, and their eyes in reading pious authors; whilst they have not resolution to forsake their vices! Lost to themselves, and to society, self-reproach is continually encreasing;

ing; and grasping the shadow, they remove farther and farther from the substance of virtue. Like a man, when the wind has blown dust in his eyes, who thinks to get it out by rubbing them, till experience convinces him, the more violent the irritation, the more they become inflamed and painful.

You visited our friend N—— lately on his death-bed. Neither his knowledge, piety, nor irreproachable life, furnished him with sufficient motives of consolation. It is several years since he entertained doubts concerning his salvation; and by mistaking the right path, sunk into a state of gloomy despondency, which made him burthen some to himself and others. In the first moments of repentance, a man ought to recollect, he is educated to some profession or employment; and that an attentive performance of the duties it enjoins, is the most acceptable worship he can pay to the Supreme Being. The desire of reformation is unavailing, unless accompanied with endeavours to be useful to mankind by the exertion of such active virtues as are correspondent to our station. Industry and exercise will restore that tranquillity we have lost, and awaken, in the soul, inexpressibly delightful sensations! I am no stranger to the state of mind I have been describing; I had my youthful follies, as well as other people. I grew sensible of my deviations. I felt the pangs of remorse: and was overwhelmed with melancholy. In this situation, I suffered my reason to be seduced by those who style themselves, the Elect, the followers of Harenhuter, or Zinzendorf. I passed all my hours in reading and praying, but I grew still more restless and disturbed. I am obliged to my excellent wife for leading me
back

back to true religion : It was she who represented to me the approaching ruin that threatened our affairs, and persuaded me again to set my hand to the plough. An immediate reflection succeeded, that placed, by Providence, in the class of peasants, I was called upon to cultivate the earth, and to bring up my children to the same business. From that instant, I resolved to apply my whole application and diligence to the improvement of my farm, and never to be a moment idle. I likewise resolved to act towards all men as I wished, in similar circumstances, they should act towards me. A maxim which, according to the words of our Saviour, includes "all the law and the prophets." After these resolutions, my heart grew lighter every day ; and when, in hours of relaxation, I read a chapter of the bible, every thing appeared clear and distinct ; whilst before, all seemed clouded with obscurity. Whenever I poured out my soul to my Creator, I experienced the most consolatory sensations ; and was then convinced of the inefficacy of spiritual devotion, where practical duties are neglected ; whilst the consciousness of having acted right, adds fresh vigour to mental ejaculation.

Kliyogg was now silent. I continued the conversation thus, You have reasoned admirably, my dear Kliyogg, and I acknowledge the truth of all you advance, but your labours and mine are extremely different in their nature. Yours consist in manual exercise, mine chiefly in contemplative : which dejection of spirits renders me incapable of pursuing, whatever efforts I make, or however strong my inclination. Corporal activity fortifies the nerves, mental activity enfeebles them. By the constant exercise of a farmer's life, the circulation of the blood becomes more free, and its fluidity greater ; whilst intenseness of thought and meditation,

tation, inseparable from the practice of physick, requires a more sedentary plan of life which condenses the blood, and occasions a languid sluggish pulse. Thus your occupation is calculated to banish melancholy, mine to invite it. I am therefore obliged, very often, to fly from reflection, and seek dissipation in walking, and the company of my friends. Still you are pursuing your proper business, said Kliyogg: in the conversation of men of sense, you may enter into useful disquisitions for the benefit of mankind, and investigate the abstruse parts of a subject with far greater facility than in your closet. I have always been greatly edified when you have been kind enough to introduce me into company, where the discourse has turned upon the daily new discoveries in various branches of science, and on the most eligible means of bringing the old to perfection. What can contribute more to general utility than enquiries, where reciprocal communication informs every one, in his turn, of something he was ignorant of? And an agreement of sentiments, animates and supports the execution of every beneficent scheme formed for the good of society, so that a man will soon see his labours universally acknowledged? Walking may also be made an instructive as well as healthful recreation, by enabling you to examine, with your own eyes, the culture of our farms; to discern the errors our husbandmen commit; and what defects stand most in need of correction. You are in the right, my dear Kliyogg, I replied. I will pay an implicit obedience to your advice, and seize every occasion of performing my duty. From this moment I will set myself chearfully to the task, that my own heart may be the faithful and comfortable witness of my integrity, as a useful member of society, and of my regularity in the practice of all its

its obligations; happy to be able, whenever it shall please heaven, to quit with satisfaction, a life spent in the proper exercise of humanity, gratitude, and thanksgiving to my Creator, and in assisting the distress and anguish of my fellow-creatures.

I may safely affirm, that the admonitions, and still more, the example of this worthy man, produced on me very salutary effects. Let it not be thought an extravagance of fancy, if I compare his wisdom with that of Socrates! The parallel would have been infinitely more striking, and virtue would have gained the admiration and honour it deserves, had Kliyogg been so fortunate to have met with a Xenophon, whose energetic pen could have made the world acquainted with his character.

I am even tempted to hope, this faint sketch will not be absolutely void of utility, if the features I have endeavoured to mark, impress on the mind of my readers only a part of those lively sensations I experienced in contemplating the original. Perhaps, the description I have given, may be an inducement to men of superior science and abilities, sometimes to turn their thoughts and observations upon the lower class of people. Our knowledge of the various properties and faculties of the human soul might be more complete; and our ideas of happiness, and true greatness of mind more certain and determined; (50) nay, I apprehend the

(50) This author is not the first philosopher who has entered into such investigations. There was a book published in 1756, nearly upon the same plan, intitled, *The Moral Philosopher*, by Mr. Hoffman, of Dresden; with a copper-plate, and this inscription: *Johannes Ludewig, agri ac vineæ colonus, Philosophus, Mathematicus, Orator, Autodidactus. Casselbuda prope Dresdam, A. 1756. Aetatis 41.* In the *Journal Etranger* for August, 1758, p. 188, there is a curious extract from this work.

question debated by the philosophers of the present age, whether sciences and literature have been more beneficial or injurious to society, might receive great elucidation. My rural Socrates is to me a proof, that the human soul is capable, in all stations, of displaying the utmost extent of its powers: that remarkable talents are never lost to society in whatsoever rank he who possesses them is placed; and that the real perfection of any character consists in acting conformably to the reasoning faculties bestowed. The husbandman, the scholar, the artisan, the magistrate, every man according to his occupation, will find sufficient opportunities for the exertion of his talents; and render himself pleasing to that Being, whose benevolent eye comprehends the vast circle of the universe, provided he contributes to the good of others, as far as his capacity and condition will allow. A wise and intelligent farmer, may be as importantly instrumental to the prosperity of a country as the most consummate legislator: The influence of his skill in cultivation will insensibly operate upon his neighbours; sobriety and decency of behaviour will prevail in the village he appertains to, and from thence be diffused amongst those adjacent, till, by degrees, the whole country will reap the benefit of so excellent a model. A happiness that cannot escape the eyes of attentive magistrates, who are desirous to rectify errors in government; and to encourage every example that tends towards national utility.

This consideration has induced me to comply with the importunities of my friends, in communicating to the public, a work, at first undertaken with the sole view of stimulating some of my countrymen to use their utmost efforts for the re-establishment of agriculture amongst us; and of pointing

ing to their observations the shortest way for the attainment of this laudable purpose. The instance before us proves the possibility of succeeding, and at the same time indicates the most efficacious means, that is, unremitting ardour and assiduity in laborious and industrious application; with a more precise and comprehensive knowledge of the best methods for the improvement and cultivation of various soils. The first requires a general reformation in the moral conduct of the peasants; the second depends upon physical experiments.

The strongest incitements to indefatigable toil are the pecuniary advantages arising from it; or honorary rewards bestowed by the government, and particular societies. The desire of titles, or publick marks of distinction, is one of the most powerful springs that influence human nature: and, in observing it act so universally on all men, in all stations, how is it possible ever to mistake the wise intention of the Creator, which seems to invite all legislators to apply it to the most eligible uses? Indeed, men of superior abilities, in every age, have constantly availed themselves of its efficacy. The misfortune is, they are not always exactly circumspect with regard to justice, in the distribution of titles of honour; which occasions the profligate and ignorant part of mankind to confound the marks of honour with the thing itself. And observing that those who have the least pretensions, frequently usurp them through art and intrigue; they insensibly lose their lustre in the eyes of men of merit. If nobility or knighthood were to be considered as living witnesses of services rendered to their country, the appearance of a lord or a knight, would animate every heart with glorious emulation, to arrive at the same distinction by the same path! But, on the contrary, when they behold the most

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despicable

despicable part of the creation adorned with the same robes as the most estimable; and that titles of honour are often the reward of infamy and lewdness; mankind are tempted to bound their schemes of grandeur within the pale of those dark and viperous intrigues which are sure to obtain the prize, however unworthy the candidate. In republican governments, to be chosen into the magistracy is an honourable distinction; and how much to be honoured is that state where dignities are the invariably assured recompense of virtue and merit! There all things flourish; every citizen is animated with ardent zeal for the publick, as that alone can render him an object of esteem. There the first lesson of infancy is, that probity, talents, and application, procure men consideration, and conduct them to honours. How degraded! how lost! is a nation, when honours are lavished on sloth, intemperance, and a thousand other vices! Moral goodness no longer exists; the most important affairs, confided to weak and inactive hands, become neglected; emulation vanishes; and a mean, servile artifice of conduct the only method pursued to gain rank and reputation!

If the magistrates of Zurich think it an object of national utility to encourage improvements in agriculture with premiums and particular marks of distinction, their whole attention should be applied to their being justly conferred. This care extends to the establishment of a Georgical Society of men of character, whose inflexible integrity, and complete knowledge of every thing relative to husbandry, might secure universal confidence and approbation; for it is necessary to be masters of the subject before they can determine with propriety the merit of the candidate. They must not only be acquainted with all the speculative part, from the best writers, but also with much of the practical,
from

from their own experience. Men of this turn will think themselves under the strongest obligation to study, with circumspection and accuracy, the natural state of the country: a task not to be easily accomplished, since, notwithstanding the small extent of territory, there is an uncommon variety of cultivation. Those parts that border upon the Alps are appropriated to the grazing and breeding of cattle. Very little corn is to be seen there, whilst in the lower and less inclosed districts of Grieffensee, Kibourg, and Regensperg, the harvest makes a glorious appearance. Along the banks of the Lake of Zurich, in the vales watered by the Limmath, Thour, Thœss, as well as on the borders of the Rhine, the culture of the vine forms the principal branch of rural œconomics, and this culture is different, according to the nature of these soils. The grapes on the Lake of Zurich seem to require another kind of treatment than those on the Limmath, though the vineyards are separated only by the city; and the culture of those planted on the sides of the Rhine, the Thour, and the Thœss, differs widely from both. The members of this Georgical Society, would therefore occasionally make excursions to examine the causes and effects of such variations, and rectify their ideas by the evidence of their senses. Thus, by a judicious distribution of applause and recompense to the best of cultivators, a noble emulation might be awakened in the peasants to bring agriculture to a state of perfection. Careful experiments might be made under the immediate inspection of the Society of all new discoveries, first in nursery-grounds, and afterwards, if successful, in the open field. An exact journal should be kept of the regular process of every experiment, so that when thoroughly convinced of the real advantage of a new discovery,

they might extol its utility, and place it on the list of uncontroverted improvements, adding, at the same time, all the necessary rules to bring it to perfection. When the Society shall have sufficiently extended its enquiries, and made all the arrangements necessary to so important an undertaking, it may propose an annual selection from a certain number of villages, taking all in rotation, of the best farmers. On an appointed day these shall be invited to appear before the Society, and, surrounded by their countrymen, hear an elogium pronounced in the most pathetic terms, recommending them as models to others, declaring them benefactors to their country, and, in testimony of the public approbation, presenting them with the destined prize! I would choose to have it a medal, representing a labourer driving his plough; in the air the genius of agriculture, placing a crown on his head, composed of ears of corn and vine leaves interwoven, with this motto, "For the best cultivator." Such rewards would have infinitely greater influence in promoting improvements in husbandry than the general custom of offering premiums for the best dissertation on œconomical questions. My method conducs to its end directly, whilst the most ingenious speculations are slow and remote in their consequences (51). I cannot make a better conclusion than with a thought from Xenophon's

(51) Youching, Emperor of China, who died in the year 1424, was remarkable for his love of justice and exact observation of the laws. He surpassed all his predecessors in schemes for the encouragement of agriculture; "patronizing
 " this necessary occupation with so much generosity, that
 " he raised to the rank of a mandarine of the eighth class,
 " that labourer, in every province, who, by the united
 " voice of the magistrates of his canton, was decreed the
 " most

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nophon's Hieron, which perfectly coincides with the scheme proposed. "Agriculture, so conducive to the good of mankind, would appear of more consequence was it encouraged by motives of emulation. Nothing would contribute more to its prosperity than the establishment of prizes in the country for the most excellent husbandmen. This would induce the people to toil with ardour to the great advantage of the citizens, and the emolument of the state, by encreasing its revenues: temperance and love of labour would become inseparable; and it is well known that industrious men have less propensity to vice than idle ones."

"most diligent, industrious, honest man! Not that the labourer was compelled to quit his original profession, where he had made so good a figure, to exercise the functions of judicature, with which he was utterly unacquainted. He still remained a labourer, with the title of mandarine: he enjoyed the privilege of being next the governor of the province, and eating at his table; and his name was engraved in letters of gold in the public hall. It is said this custom, so repugnant to our manners, and so strong a satire upon them, still subsists." See Additions to the History of all Nations, by M. Voltaire.

ADDENDA.





A D D E N D A.

A Letter from Doctor Hirzell to the French Translator.

S I R,

Zurich, August 1, 1763.

I Have the honour to send, in obedience to your request, an account of what passed at the meeting of peasants, chosen from our best farmers, and held in consequence of an invitation from the Physical Society. An event, in which your philosopher is so peculiarly interested as to give this letter a natural right to be inserted in a supplement to the second edition of the Rural Socrates. I do not lose sight a moment of our good Kliyogg, and endeavour to catch every native ray of genius that tends to instruct and improve. But I fear the more this excellent being mingles with mankind, the more he associates with persons of polite education, there will be greater difficulty in separating the traces of original character from those that are contracted by conversing with the world. What I conceive so peculiarly distinguishes our rural philosopher is, his rising to the sublimest heights of philosophy entirely by the force of native genius and reflexion, unassisted by books,
or

or scholastic conversation! That a peasant should, by a happy concurrence of circumstances, be placed in a way to attain the several parts of learning and knowledge, and then make a considerable proficiency in them, has nothing in it very extraordinary. In reality, what is there more to excite admiration, that a peasant, by the assistance of books and masters, should acquire skill in the sciences, than there would be if a scholar, by great pains and application, should learn to make faggots?

I thought it requisite to introduce Kliyogg to the principal persons in the city, whose curiosity was universally excited: some, because his character had interested them warmly in his favour; others, from the hope of confuting the description I had given.

These latter could neither comprehend nor reconcile that a simple villager should be more wise and intelligent than the majority of the magistrates, ecclesiasticks, merchants, or men of letters! They supported, with great vehemence, in all companies, that it was impossible there could be such a man. The desire to see him was general, and wherever he went he spoke with so much freedom and strength of argument, that envy itself was forced to applaud him, and men of sense and virtue eagerly offered him their friendship; the most wise and sagacious magistrates did not disdain to converse with him upon improvements in agriculture and several other objects of the police, which presented me with an infinite number of occasions to admire his wonderful penetration, and the exquisite knowledge he had of the characters of men. I saw that he distinguished, almost intuitively, the ruling principle in every person, and unravelled in succeeding conversations, with equal discernment,



discernment, the clue that guided their arguments, whether it was mere curiosity, a sincere love of truth, vanity, or fondness for disputation. He observed with peculiar satisfaction in these discoveries, the impression his superior reason and reverence for truth made upon the minds of his audience, and this observation gave him hopes of being instrumental to the public good. There wanted no farther incitement to engage him to visit frequently those persons whose disposition inclined them to relish, and their situation to execute the advantageous plans he meditated.

He had it particularly at heart to persuade the peasants of his community to consent to inclosing of the common pasturage, which is an extensive tract of land, very swampy and wet, in its present state of small advantage; but, in his opinion, when properly divided by inclosures, would furnish every farmer with food for a much greater number of cattle, and augment manure in the same proportion, so material to the good culture of ground.

Klyogg was sensible the Physical Society was occupied with views congenial to his own, and animated with the same zeal for the public. He came often to our assemblies, and communicated his ideas on the methods requisite to be pursued, if they earnestly desired that agriculture should flourish. He principally recommended extending their complaisance so far as to hear the opinion of the peasants from their own mouths, and confer with them on the proposed regulations. It can only be by these familiar conferences, said he, that you will ever form just ideas of the state of agriculture, determine the precise degree our cultivators are arrived at, and ascertain the causes which

which hath prevented their proceeding farther towards perfection. These marks of consideration for them as members of the community, whose station and understanding are not disregarded, will engage their attention, and raise a spirit of activity to make proper and judicious reflections and observations on the various parts of husbandry. By placing confidence in them, you will gain theirs, and they will fall insensibly into your opinion when once they are persuaded that it is not from authority but conviction you wish them to pursue new tracks. You frequently reason upon the effects of different methods of husbandry: will you permit me, gentlemen, to bring some of my brethren to visit you? Hear their arguments upon subjects which they likewise are acquainted with. The farmer is not so vain to imagine he understands the theory of agriculture like men of knowledge and education; persuade him however, that he is not totally ignorant of it, rather flatter his self-love, convince him you have a high idea of his capacity, if you mean to excite his emulation, and incline him more earnestly to seek instruction.

Perceiving we were pleased with his discourse, he advised us to choose some subject proper for the investigation of peasants, and request their thoughts upon it. He recommended, as a first essay, the question concerning dry fences or inclosures, which he apprehended were carried to a hurtful excess in our cantons; that many of them are not only useless but injurious to the fertility of land, and that these rough palisades rob the forests of a great deal of wood, and the labourer of a great deal of time which might be more profitably employed. The Society could not but applaud this proposition of our philosopher, but some amongst them had too
indifferent

indifferent an opinion of the unpolished manners and understanding of country-men to expect any thing better from such a conference than much confusion and disorder. It appeared to them that the modest bashful part of the peasants would be too much intimidated to venture expressing their sentiments with freedom in a public assembly, whilst the bold and daring would fall into rude and noisy disputes, affording neither information nor advantage; and they thought every peasant necessarily included in one or other of these characters. A way of thinking that led to a resolution of requesting the farmers to send us their sentiments in writing upon particular questions in agriculture: we agreed these should be regularly circulated twice a year, commencing with that recommended by Kli-yogg concerning fences or inclosures. It was stated in this manner.

Query 1. In what cases dry fences or inclosures are necessary? and in what circumstances inclosures may be admitted, however superfluous and detrimental they may appear?

2. Supposing dry fences or inclosures are agreed to be evidently detrimental, by what method, more eligible, can land be preserved from trespasses?

3. If dry fences or inclosures are judged necessary, in what manner may they be rendered the most useful, according to different circumstances, or at least be attended with the fewest ill consequences?

We received, before the time limited, sixteen different memorials; the solidity, perspicuity, and
regularity

regularity of the arguments, raised our admiration to the highest pitch. Kliyogg only was not thoroughly satisfied. This appears excellent to those who understand good writing, says he, but it often happens that the best husbandmen are least skilful in style! our philosopher himself is a strong proof of this. He returned several times to the charge, and at length prevailed with the Society to consent to a personal conference with a select number of peasants. They gave Kliyogg an invitation in form for such as he pointed out, and several of our members undertook to invite on their part the most sensible farmers of their acquaintance. The 15th of March 1763 was the day appointed, and fifteen peasants, from different districts of the canton of Zurich, appeared in the assembly.

The treasurer, M. Heidegger, a wise magistrate, zealous in promoting every thing that tends to the good of his country, opened the conference by a discourse truly pathetic. One would have thought him an indulgent parent addressing his children: he explained, in the most affectionate manner, and with the noblest simplicity of diction, the motives that had determined the Physical Society to invite their good friends from the country to a conference. "Desirous to be informed, said he, "from your own mouths, of the real state of "agriculture in different parts of the canton, they "wish to hear your opinion, how its defects "may be best corrected, and what are the most "probable means of bringing it to greater perfection." He exhorted them to answer, with manly frankness and ingenuousness, to the questions they had to propose, and confined his enquiries principally to the three questions before stated.

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An unexpected affair requiring the attendance of the treasurer, I was appointed his deputy. Imagine, Sir, my astonishment and that of the Society in general, several of whom seconded my request with pleasure, when we heard the greater part of the peasants, each in his turn, describe, with order and precision, the course of husbandry in his part of the canton, compute the advantages and defects, and propose the methods he thought most likely to rectify the latter. Not one transgressed the bounds of decency prescribed: they spoke alternately, without interrupting each other, and without the least symptom of animosity or confusion. When their opinions were divided they objected with modesty, and supported them by instances drawn from their own experience. If any of the company attempted to run them down with volubility of speech, they soon put him to flight by a close interrogation relative to the point they were discussing.

I shall not say any thing, Sir, of the result of this conference, as the Society has given the public an abstract of three prize memorials on the question concerning the use of inclosures, and intends publishing an abridgment of all the experiments collected at this interesting conference, most proper to serve for instruction to the generality of husbandmen. I shall content myself at present with assuring you we are singularly edified, as much from the decent behaviour of these honest people, as from their intelligence and zeal for the public good. It is amazing with what facility, clearness, and energy they express their conceptions, when we consider how very rarely we meet with a union of solid argument and ready elocution, in men whose ge-

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nius has been cultivated from their cradle ! Upon the whole, Sir, I may venture to assure you that this conference did honour to human nature, and has indisputably convinced us, that a good understanding and an upright heart are not excluded from any condition of life ; and that true dignity of soul is no more foreign to simple villagers than to the most elevated ranks in the polite world. With a heart affected with what I had seen and heard, I could not forbear expressing to the assembly the feelings with which I was agitated. I have never in my life experienced, said I, a satisfaction equal to what I am sensible of at this agreeable moment, when I behold men of superior talents in the city and the country unite their common endeavours for the public benefit ! and you, dear friends of agriculture, must now be convinced that all our views centre, in the discovery of such methods as may infallibly tend to augment the prosperity of our country, to give fresh vigour to the industry and activity of our labourers, by endeavouring to instruct them in the most certain rules for improving the fertility of the soil ; to procure intelligence and read dissertations from all parts of the globe, composed by men whose knowledge and ingenuity are eminently adapted to instruct us by the experiments they make. Those amongst us, whose situation will allow it, confirm the reality of these experiments by trials of their own. I see, my good friends, you are animated with the same zeal, and I expect the most happy effects will attend this country from it ; for, in reality, it is on you that the success of all our enquiries depends. All our speculations would be fruitless if you were dilatory in performing

forming your part; and if, convinced as you are of the integrity of our intentions, you delayed to execute the plans we recommend. It depends on your endeavours to render this a happy and flourishing country. Your virtues, your candour, are sure guarantees of your acquiescence: you will then have a just right to the glorious title of benefactors to this beloved country: you will then demonstrate to the world that the occupation of a husbandman, is, in its consequences, the most important and honourable of all that are exercised in civil society; and, at the same time, the most agreeable and satisfactory to fulfil. What can be more pleasing than a perpetual contemplation of the works of the Creator; than breathing a pure and free air, confirming the health of the body by exercise and labour; than beholding abundant fertility, the reward of care and diligence? What employment can be attended with such heart-felt joy as that where the greater part of the success depends on a man's own conduct? How much more unfortunate in this respect are we? How much time must be expended? How much care and anxiety endured before we can give our ideas that form which will make them acceptable to others? And what a number of efforts must be made? What a number of obstacles surmounted before we can introduce them into practice, or reap the least advantage from our studies? Continue then, my friends, to second us with all your might, give us a share of your confidence and friendship. You shall see us, in our turn, do every thing in our power to convince you of our sincere regard, and render of general use, the maxims we have learned from books, from experiments,

and from your conversation. May this union of interests procure our country all those blessings there is reason to expect. I had the satisfaction in finishing my discourse, to observe some emotions in the countenance of my auditors, expressive of their approbation.

The Society, as a testimony of regard and good will to their guests, had provided a dinner, where there was so general an appearance of cordiality and kindness, that the conclusion of the day was not less affecting to a well-wisher to mankind than the beginning.

These, Sir, are the particulars you desired to know. I hope you are in good health, and am, &c.

HIRZEL, M. D.

LETTER



L E T T E R I.

*From the Marquis de Mirabeau to the French
Translator.*

S I R,

Paris, Nov. 8, 1762.

AT my return from a five months tour through the southern provinces of this kingdom, I found the letter you did me the honour of writing on the 14th of last month, with a copy of your book, which has waited too long for my warmest acknowledgments. But before I thanked you, Sir, for this flattering and distinguishing mark of your esteem, I was desirous of forming a proper judgment of the work, that I might deliver my sentiments with freedom and sincerity; and this desire has retarded, for some days, my eagerness to express my gratitude. The time, however, is not great, for I have been only five days in Paris; and domestic affairs with a large family, and this part of the world, require a good deal of regulation at one's first arrival. I have just now finished reading this edifying, excellent work, and am impatient to thank you for the pleasure it has given me. I am peculiarly sensible, how little I deserve the respectable character with which the people of Switzerland have complimented me. And if ever since

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I was enrolled in their Society, I have been eager to demonstrate my zeal on every occasion ; I have only acted the part of a man, who is in some degree ashamed to receive a recompense for services yet unperformed. From my earlier days, I have delighted in blowing the trumpet of honest fame ; and indulged my inclination in delineating, and celebrating such characteristical and delicate features of the soul as do honour to humanity. This turn of thinking will explain to you, how much I must have been charmed with the Rural Socrates. The reputation of the piece has travelled here before, but I have only my own sentiments to speak of at present.

Let me then assure you, that I consider it as one of the most useful books that ever was published : an exalted advantage that necessarily includes the agreeable ! for the mind must be interested before it can receive solid instruction. The figurative modes of expression, the brilliancy of poetical images in the Old Testament, and the parables in the New, are indications that the Deity himself accommodates his expressions to the contexture of those finer parts of the human frame, which he has formed to receive the impression of his laws. Some first-rate genius, perhaps, has given wing to that swarm of diurnal writers on practical agriculture which has over-run this nation. I have seen, not without some painful reflections, that in a country where no one is acquainted with its principles or dependencies, every body pretends to teach it. Presumption, as is common, marches on the side of ignorance. The farmers of the cabinet, have composed voluminous rules, that all purchase, few read, and happily, none practise ! Others have impudently boasted of the success of pretended experiments ; and confined their tillage to the paper they
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they are blotting. Indeed there is some prudence in not running inconsiderately into expences upon an ungrateful soil, which would never repay them! Some patriotic societies are formed in cities, who extol exotic seeds; strike out new models for ploughs; harangue upon unknown productions; make expensive garden experiments of no utility; reform the practice of experienced husbandmen: whilst the latter contemplate with disdain these delicate speculative professors, coming cap in hand, to propose their abandoning a system of husbandry pointed out by reason, and confirmed by experience. In the midst of this crowd of pretenders, some judicious men have given good, and short methods of cultivation, the fruit of their own successful labours; but these essays, few in number, floating in the chaos of modern erudition, are known and valued by persons of genius only. My zeal for the advancement and perfection of an art which I have ever acknowledged and boasted the utility of, without pretending to understand the detail and progress of its operations, led me to observe, with vexation, that the new system of husbandry was no better than a georgical romance, describing the false experiments of a deluded nation. Where would have been all our arts and sciences, exclaimed I, if we had sought their principles in the fictions of orators? Let us enrich agriculture with examples that may conduct us to truth by instructive and animating descriptions. Not knowing where to meet with such, I was tempted to a translation of Thompson's Seasons. I soon saw that these were the peasants and landscapes of the imagination: I wanted portraits of real life and manners; and the Rural Socrates more than answered my sanguine wishes. It contains the theory and

practice of the most rational and intelligent husbandry; the most noble and comprehensive philosophy; the most sincere and elevated piety! Kli-yogg is my hero in all things! How do all our mean prejudices fly before the presence of such a man! What innate dignity and worth must he possess who never deviates from the law prescribed by the Supreme Being! Did my situation admit my absence, with what pleasure and advantage should I travel to converse with this extraordinary genius! I might, perhaps, convince him, in shewing him a plough-boy that I have, who, with two horses, regularly plows two acres per day, (3) of the advantage he would gain, supposing the nature of the soil, and the extent of his culture allow him to prefer the labour of horses to that of oxen; as it now requires four oxen and two men to plow only one acre per day. I would acquaint him that there is nothing chimerical in his tribe of peasants; since the clans of Scotland exactly resemble it, with this difference, that they settled in an uninhabited country. I would also instance the Haut-pentvis of St. Omer, who occupy the suburbs of that large city. These are a family of merchants, whose business obliges them to associate with the world: yet, by their constant care to intermarry with each other, they preserve that distinction of language, manners, and regular conduct, on which their prosperity was originally founded. But what has a still nearer connection with the plan of Kli-yogg, and seems a more proper and solid founda-

(3) M. de Mirabeau will allow me to assert that this is a most remarkable circumstance: It is pity he did not add the soil. It is often done in Norfolk, but only in the very light soils, and by no means equals one acre in heavier lands. *

tion for him to build upon, is the family of Pineon, a farmer in Auvergne, who had the same idea more than a century ago; and having lived to see his sons married, requested them to continue a distinct tribe, and to maintain inviolably the sacred band of union, by the community of wealth and property amongst them. This amicable institution has prospered so greatly, that the Pineons have not only a family seat in the mountains, supplied with all the conveniencies of life, with elegant apartments for strangers of the highest rank, who are treated with the most generous hospitality; but they have also several villages appertaining to them, whose clergy, lawyers, &c. are branches from the same stock. The necessary arts of life are exercised in this tribe for the emolument of the whole, and the superfluities sold at the adjacent fairs and markets, where every one carries with him his family credentials. I know these circumstances only by report; though in the journey I lately made, I passed within eight leagues of this singular establishment, without knowing it. I wished for time to have turned back, and made my own observations and enquiries: I will repair this neglect some other time, as my estate at Limousin is not more than thirty leagues from thence. In regard to the family in Upper Provence that you mention, I am of that country, and I never heard any body name them before. Besides, the point in question seems to be a free communication of property, rather than an obstinate perseverance in living in obscurity. The last is attended with too great a degree of penury; the former can never be acquainted with it. Upon the whole, Kliyogg will found an order of monastick husbandmen; but nature will be its basis, without the assistance of
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of enthusiastick mortification, or severe penances always so seducing to the imagination of heated superstitious men, who are ignorant of essential duties. All is simple, and consequently great, in his institution! I will venture to foretell, that the posterity of this man will be an honour, defence, and blessing to his country. Yet his project will probably be accused of singularity, and would be not at all analogous to the constitution of a large kingdom. I have little more to add, Sir, than to express my grateful sense of the distinguished honour done me in the dedication of so valuable a work. To be esteemed by persons of probity was always my highest ambition, and there is some virtue in wishing to be virtuous! Like the poet, who places in the same part of the Elysian fields those celebrated writers, "*E Phæbo dignè locuti, quique sui memores alios fecere merendo.*" I associate those who celebrate the virtue of others in their writings, with those who illustrate it by their example; from a persuasion that who knows and reverences, will undoubtedly practise it. This, Sir, is the use I hope to make of your good opinion. You connect with it the suffrage of a nation that I have respected and loved from early youth; who adore liberty, understand natural equality, practise virtue, and enjoy happiness. It will ever have the second place in my regard; the social affections of my heart repose there, when torn and distressed every where else. It is, by all sorts of titles, that the present you have obliged me with, gives you a right to my most lively gratitude, united to the sentiments of esteem, with which I have the honour to be,

Sir, &c.

The French Translator's Answer to M. de Mirabeau.

S I R,

Bafil, Jan. 4, 1763.

I Have reason to applaud my good fortune in presenting the publick with the translation of a work which has merited your approbation, and procured me the honour of a most obliging and interesting letter. What would I not undertake to deserve the friendship of the Marquis de Mirabeau! And how flattering the consideration, if this faint essay has given me some claim to your esteem, and secured me the privilege of corresponding with you, till some fortunate circumstance gives me an opportunity of paying my personal respects; a pleasure I am more desirous of, than I can find words to express!

Your excellent book (4) had the same effect on me, that is universally experienced in France, and other parts of the world. It has received that unprejudiced taste for agriculture, which seems naturally implanted in the human heart; though frequently extinguished for want of exertion. Some other productions on the same subject, that owe their fame to your recommendation, and some accidental opportunity of applying my attention to rural affairs, have encouraged this taste, unfortunately so seldom compatible with the profession of arms. If I can indulge this propensity in those intervals of rest, which the lenity of the French service suffers its officers to enjoy; or, when I have finished the career of glory, I shall hope, Sir, you will not refuse me your instruction nor advice.

(4) *L' Ami des Hommes.*

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I have still another favour to request: the book-sellers who had the copy of the Rural Socrates, finding the first impression sold readily, proposed printing a second; and I have thoughts of adding some fugitive pieces, by way of notes, or supplement. If you will allow me to include your letter, it will be a considerable embellishment to this new edition. The sanction of a man of genius, will add double weight to the patriotic maxims you admire in Kliyogg. And the examples of the Haut-Pentvis, and the Pineons, which you have kindly cited, besides their being very remarkable, furnish a fresh proof of the judgment and understanding of our country philosopher.

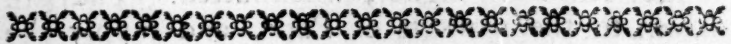
There is one circumstance, in which you seem to differ: I mean the preference he gives to oxen in plowing. In your opinion horses answer better. But I am doubtful whether the difference of soil is considered. A man with you, can plow two acres in a day with two horses; but are the lands stiff and heavy as those of Kliyogg? Besides, this considerate husbandman tells, that oxen are bought at a more moderate price than horses, computing the final profit and loss resulting from each: there is not near the expence in maintaining them; and the quantity and quality of the manure they afford, is a full indemnification for the want of activity in these animals. I know the article "on the culture of lands," in the Encyclopædia, gives a very positive decree in favour of horses; and your opinion, Sir, greatly strengthens the decision. I will never grant the advantage incontestable in the greater part of the provinces: but we must not conclude this to be the case in Switzerland; where, I apprehend, oxen are stronger and more active than in France, because the herbage is better adapted

to their constitution. Oxen there are also much more profitable to the grazier than those in France, as they sell much higher, when fatted. They are driven to the markets of Paris, and supply the troops during the campaigns; nor is there any beef but that of Auvergne, which is comparable to this. Fodder for horses, and oats, in particular, are much dearer in Switzerland; and, perhaps, it may be added, horses require more corn. At least, I observed in the last war, the Swiss horses in the regiment suffered more from the scarcity of food, to which our situation exposed them, than those of other countries.

I beg leave to remind you, Sir, that these are rather doubts than objections, I take the liberty of offering; and from the acknowledged superiority of your judgment, I hope to have them removed. I remain, with the highest esteem,

Sir, your's, &c.

LETTER



LETTER II.

From the Marquis de Mirabeau.

S I R, *Paris, Jan. 25, 1763.*

I Am thoroughly sensible of the many polite expressions in your letter of the 3d of January; and should rejoice to have it in my power to thank you personally, or that my correspondence could afford you any entertainment. But, Sir, since you are so fortunate, not to have lost in the life of a soldier, the elements of that taste for agriculture, which the great Author of Nature has universally dispensed; a taste calculated to procure competence, health and peace, to all ages and situations; it must be by practical experience, and the society of persons perfectly acquainted with husbandry, that you can attain a complete knowledge of the art, rather than from corresponding with those who honour it.

I am much pleased, for the sake of the public, that the sale of the Rural Socrates answers so well; nor do I apprehend, that a second edition has occasion for any augmentations to give it equal success. I have always been scrupulous of making alterations in the essays I publish, if they go through

through a second edition; though certainly, in one of them there is a very essential correction wanting; for in the second part of *L'Ami des Hommes*, I have expressly contradicted what I had asserted as a fundamental principle in the first, "that population was the consequence of riches." I was sensible of my error in mistaking the cause for the effect, and have since advanced that "population was the origin of wealth." The method was simple and easy, to have established this latter opinion by some slight additions, explaining its rectitude; but I made a point of lessening the value of the book to the first purchasers, and have invariably persisted in not changing the least sentence in works once published; or adding any thing by way of appendix, in future editions.

The latter seems to be what you intend, instead of inserting notes in the work itself. I should be glad if the letter I did myself the honour to address to you, and that you are desirous of printing in the supplement, may carry any weight or utility; such as it is, Sir, you are to consider it as your own property, not mine. I have made a resolution, and I ought to keep it, never to print any thing for the future; but it would give me satisfaction to write any thing for the benefit of mankind; and that so worthy a trustee as yourself should stamp a value upon, that it certainly did not possess when it quitted my hands.

If you still think in the same manner, I shall still more regret not paying a visit to the family in Auvergne, that I gave you some particulars of; I could then have collected such circumstances of its founder's institution, as a man
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attentive to the formation and progress of society must undoubtedly have remarked. A scheme of this nature must have been the result of deep reflection; and a man who settled a number of individuals, as a separate establishment, was to consider of rational means for their subsistence from the labour of their hands, on an uncultivated mountain. The assistance of both heaven and earth seemed necessary to support the public credit of such an institution, with the various expences of magistracy, civil policy, and military defence; which the cruel avidity of the sons of interest render universally oppressive, whilst their combinations are the heaviest tax. A citizen, I say, who, in his passage through life, completed an establishment like this, deserves the most exalted encomiums; and his example, and institutes, cannot be too zealously recommended to public regard and imitation. This is what I should have had great pleasure in doing; and my letter had then been worthy of appearing as a counterpart to the living example of Kliyogg. All I know is, the fact is real; and in regard to circumstances, I believe I have told you, I have only report, and general rumours are always defective in some respects. An ocular witness of veracity and integrity, is the only authority to be depended on, in any historical fact. I will one day or other take a journey into Auvergne, and be my own examiner. Kliyogg himself, may find, perhaps, in the rules of his predecessors, some maxims that may support and establish his excellent system. Your remarks on the difference of expence in the use of oxen and horses, is a point so important, that we cannot be too exact and nice in our calculations concerning it, which are the true foundation of
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good œconomy. I shall begin first, by asserting, that there can be no general rule in agriculture adapted to all cantons, all situations, all tenures of lands or estates. Secondly, that the particular reasons you offer for the preference given to oxen in Switzerland, appear to me well founded, in regard to the customs of the country, the qualities of the soil, and the circumscribed limits of the farms. Thirdly, I argue, that Kliyogg has not a sufficient extent of land to make draught horses answer. But it is nevertheless true, that his method of ploughing cannot serve for a model in a rich and large farm; for to judge according to rules of calculation, let us first, if you please, examine the detail of expence and produce in the husbandry of that ingenious cultivator, as they are stated.

In the list of expence, there is no deduction for the advances, nor for the interest of the first, as well as annual expences of that culture, which occupies four persons, the heads of the family; which expence ought to be reckoned under the title of annual advances, at least as 26*l* 5*s*. This is but a paltry expence for the masters and eleven children

The keeping four oxen and one horse cannot be reckoned at less than			
2 <i>l</i> . 3 <i>s</i> . 9 <i>d</i> a head, or	-	-	10 18 9
Wear and tear of the plough and other implements	-	-	4 7 6
			41 11 3

The returns from these expences or the neat produce are no more than 30*l* 1*s*. 6*d*. It must therefore be an extreme parsimony, that can supply
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the rest; besides the interest of money, and without reckoning an immunity from every impost. But let us return to the calculation.

The total produce of the forty-five acres of land, expences included, except seed, is 68*l.* 2*s.* 9*d.* that is about 1*l.* 10*s.* per acre.

The neat produce of forty-five acres, which pays 21*l.* 17*s.* 6*d.* rent, and 8*l.* 3*s.* 7*d.* tithe, is about 13*s.* 3*d.* per acre.

The returns to the cultivator for the management of forty-five acres is 38*l.* 2*s.* 1*d.* or per acre about 17*s.* Now in the grand culture with horses, these returns are 75*l.* 2*s.* 4*d.* instead of 38*l.* 2*s.* 1*d.* or 1*l.* 13*s.* 3*d.* per acre, instead of 17*s.*

In Kliyogg's culture the land yields $5\frac{1}{4}$ of produce for one of seed. In the great culture, upon a medium of strong and light land, it is $10\frac{1}{7}$ for one, the maintenance of the horses deducted. It is not in this respect the same with Kliyogg; his oxen consume him the greatest part of the hay of fifteen acres of grass, and eat twenty-four acres of pasture. This diminishes more than a fourth of the produce of his estate, for without this expence it would yield him about 87*l.* 19*s.* instead of 68*l.* 2*s.* 9*d.* Nevertheless the expence of a horse is triple that of an ox. It is a mere vulgar error to suppose the labour of oxen for culture more profitable than that of horses.

In the comparison which we have made of the small culture practised by the laborious and able Kliyogg, with the rich grand culture, the losses of the farmer amount to 37*l.* and the loss by the expences of the oxen amount to 19*l.* 13*s.* 9*d.* so that the total is 56*l.* 13*s.* 9*d.* which is equal to the half of what the land would produce in the grand culture.

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In the grand culture, the expence of the horses is recompensed by the grain which may be drawn from beasts of profit; thus the one is absorbed in the other, and both are excluded from the calculation of the expences and product of the grand culture. It is so with the small culture where the expence of the oxen must have place in the calculation, and then examine the recompense drawn from the profitable cattle: these with Kliyogg are reduced to four cows and two hogs. The profit of the first may be reckoned, expences deducted, at 3*l.* 10*s.* and that of the hogs at as much more, in all 7*l.* We may also reckon the profit by the oxen after ploughing them. This amounts to 8*s.* 9*d.* a beast; and this benefit may come after working them four years. The four beasts will, therefore, in four years, pay 1*l.* 15*s.* or 8*s.* 9*d.* a year, which makes the sum total 7*l.* 8*s.* 9*d.*

The advantage of selling the beasts that have ploughed is well known, and of receiving in such sale the money they cost, whereas those who use horses profit not by this advantage. I shall not enter into this account, but to prove the nullity of it, refer the reader to the article *Fermier*, in the *Encyclopedie*.

We find therefore, for Kliyogg, a recompense in his profitable beasts of 7*l.* 8*s.* 9*d.* but we must not forget a sum of 4*l.* 16*s.* 3*d.* which he pays annually for a meadow. This reduces the 7*l.* 8*s.* 9*d.* to 2*l.* 12*s.* 6*d.* which are a deduction from the 56*l.* 17*s.* 6*d.* loss, which is found in the comparison of profit, between the great scale of husbandry, and the small one. But I am yet of opinion, that it would not be for the advantage of Kliyogg to pursue this method of culture, which requires, at least, the constant labour of one plough to every

hundred acres of land; and where it would be necessary to have a flock of sheep, with other stock in proportion, to furnish the necessary manure for producing strong and plentiful crops. Thus the result of all our reasoning still is, that the Rural Socrates, according to the circumstances of his situation, undisputably remains an excellent farmer, and a most exemplary citizen (5).

I have thus, Sir, endeavoured to ascertain the real difference of expence between the two methods of husbandry. At the same time, observing, that I speak in general terms. But this fact, which by a closer and more accurate computation is rendered yet more striking, and demonstrable, is certainly of the greatest consequence to the real prosperity of a state; and of course, to the multiplication and happiness of the human species. Experimental truth is the great basis of true œconomical science; that noble science, to which all others must yield the preference; but posterity will, I hope, enjoy the sunshine of that dawn which breaks upon our horizon. In the contemplation of that happy period, continue, Sir, your assiduous application to a study that renders you useful to mankind. I experience, in some degree, the pleasure of this distant perspective, though I have contributed very little towards its perfection. Those charitable persons who recommend our detaching ourselves from this world in order to prepare for the next, are not guilty of fallacy, in speaking of

(5) This calculation of M. de Mirabeau is by no means clear; the comparison of two horses against four oxen and a horse is out of the question. Relative to England, I assert that two oxen are maintained much cheaper than two horses, and will do equal work; which is at once decisive; and I speak from my own attentive experience. *

the generality of men, when they say, it is the same thing, at their last hour, whether they have lived a hundred years, or only thirty: to those who are entirely engrossed by their own selfish, mean, contracted advantages, or idle pleasures; the past is indeed nothing: but to men, whose occupation is the good of others; who have sowed in the past, reaped in the present, and planned a rich harvest for the future; it is very important for them to have lived; to continue to live; and to hope for length of days. Yet such men, though they see the completion of their labours, are not so infatuated with the brightness of the prospect, as to resign it with reluctance in the moment when they must bid adieu to all earthly enjoyments. Their benevolent and public-spirited plans, will gain a solid foundation, independently of their existence. Self-love buried with its victim, groans over the remembrance of vanished joys, and laments there are no more in reversion; whilst the spirit of philanthropy reposes in the consumption of a life exercised in the practice of those virtues it inspires; blesses mankind in departing, and is comforted by the consolation that it falls alone, and leaves the world flourishing and happy. This is, I think, the best regimen we can prescribe to all perishable beings, who feel and reflect. You are now following it, and I fancy myself somewhat entitled, certainly interested, to recommend that you persevere. I have the honour to be, Sir, Your very humble servant,
MIRABEAU. (6)

(6) This nobleman is the celebrated author of that excellent work, *L'Ami des Hommes, ou Traité de la Population*; which has been read with amazing avidity in most parts of Europe. It is an admirable performance, and greatly deserves the attention of this country. How much more deserving a translation than the frippery works we are so eager to copy? *

That I might leave nothing omitted capable of clearing up this important question, at least, so far as it relates to Switzerland; I addressed my enquiries to a native of that country, the most equal in the knowledge of agriculture to the Marquis de Mirabeau: A man, to whom ancient Greece had erected statues, and to whom all his fellow-citizens capable of comprehending his worth, raise them in their hearts. This friend to the human species, is the valuable M. Tschiffeli, secretary to the supreme council of the republic of Bern, and vice-president of the Oeconomical Society. It is to the quickness of his perception, the attachment and zeal with which he coincides with every good and useful measure, explaining and persuading others to relish it; and still more to that arduous resolution which surmounts all obstacles, and captivates all minds; in a word, to his excellent plans, and indefatigable solicitude, that the Oeconomical Society of Bern, one of the first establishments in Switzerland, and really an honour to human nature, owes the active principles of its institution. On communicating the foregoing letter, his complaisance led him to write the following, where he objects, or accedes with some restrictions, to the opinion of the Marquis de Mirabeau. We must refer it to the most intelligent and experienced of our farmers to determine between two persons equally respectable, and influenced by the same benevolent motives. My conjecture is, that they will pronounce in favour of both: of Monsieur de Mirabeau, for the culture of large farms in particular countries, perhaps in France universally; and of M. Tschiffeli, in regard to those in Switzerland, and possibly in all small farms.

Letter

Letter from Monsieur Tschiffeli.

S I R,

ALL the observations of the Marquis de Mirabeau on the contracted and narrow scale of husbandry pursued by our Kliyogg, may be reduced to one general question. Is it more profitable to plow with horses or with oxen? Undoubtedly, a very material enquiry, which deserves a thorough examination in every country, district, or particular estate, under all possible circumstances.

The authority of Monsieur de Mirabeau, the first genius, perhaps, of the age, in comprehending the true principles of agriculture, is undoubtedly of considerable weight: nor can any person have a more exalted respect for that nobleman's knowledge and zeal for the good of mankind. I know him under the title, so justly acquired, of *P'ami des hommes* [the friend of men.] But we are each of us in search of truth. I am under no apprehensions of offending him by differing in opinion on a capital point of agriculture.

I establish it as a universal rule, that wherever the roads are not excessively stoney, nor the soil of an estate extremely light, it is of more general advantage to use oxen for draught than horses, with some exceptions, however, where the trade of horses is considerable, and that of horned cattle scarcely opened at all: instances rare in all parts of the world, and seldom, or never, met with in Switzerland. My remarks will be chiefly confined to that country, as the only one I am sufficiently acquainted with, to give my opinion with propriety.

The only sensible advantage of horses over oxen, either in drawing or plowing, consists in the greater

vigour, activity, and speed, with which they expedite their work: all things else are equal; for experience evinces, that four very robust oxen, forward as much business as four horses indifferently maintained without oats (7), according to the common custom of the peasants. But the quality granted, I set at one third the superior swiftness and vigour of horses, that is, I allow four horses to do the same work as six oxen, which is all I can possibly grant, and some labourers of good judgment, whom I have consulted, will scarcely admit one fifth difference. The general prepossession here in favour of oxen, may, perhaps, account for this. You will please to observe, Sir, that this advantage, however great it appears, will be immaterial, in all farms, that, like ours in general, are too small to employ a team of horses throughout the year. Our fortunes are too contracted, our corn countries too populous, and our estates too dear, to admit of making extensive purchases.

Fifty acres of arable land, the same quantity of meadow, and pasturage in proportion, are, with us, considered as large farms: there are very few of greater dimensions. Nay, it is found by experience, that an estate of that size seldom produces more than half what is made of the same number of acres divided between two or three occupiers. If there is not sufficient employment for draught horses upon the farm all the year, they must either be turned upon the stubble, or used in road carriage of goods for tradesmen: in the first case their keeping is more expensive than that of oxen; and in the second, the ploughman become a waggoner is on the road to ruin; fatally exemplified in some parts of

(7) Horses maintained without oats! What are we to understand by this? *

the Païs de Vaud, where miserable teams of horses perish with fatigue and hunger in road waggons. Their manure is lost to the land; the ploughman commences a drunken carrier, is quarrellsome and dissipated; habits very improper for a husbandman, the basis of whose art is temperance and application.

M. de Mirabeau, in his letter, computes the maintenance of horses to be three times dearer than that of oxen; but says at the same time, that the expence should first of all be deducted from the clear profit of what he calls the grand scale of husbandry, which, after such deductions, he makes amount to more than ten times the money that has been expended. But he will permit me to observe the impossibility that such luxuriant crops can be merely the effect of plowing with horses: with our draught oxen we certainly cut as deep, and equal furrows as can be performed with the best horses. We bestow three, and sometimes four plowings upon fallow lands, and very often two in the common field culture. I very much doubt if these be carried much farther in France; and, perhaps, there is not any country in Europe where the soil is more carefully cultivated than in Switzerland; yet our harvests are vastly inferior to those the Marquis speaks of. It does not seem to be from what cattle are used in the plough, but from the richness of the soil and warmth of the climate that we must investigate the cause: and if the fact is certain, that in France, after the deductions made for the extraordinary expence of horses, the clear produce is ten to one greater, the high price of fatted cattle must be a still farther additional profit to the grazier.

Our manner of calculating in Switzerland is thus:

The subsistence of six oxen, at about three or four years old, does not cost more than that of four draught

draught horses (8), including the expence of forage. This has been tried and verified by a thousand instances, so that every labourer will decide in favour of oxen: the latter are infinitely less delicate than horses, are less liable to distempers and accidents, and are much more regular in labour.

As our land is, in general, hot and gravelly, the manure of oxen is greatly preferable to that of horses.

Eating their food so much quicker than horses, is an article that gains two hours daily; one of which, at least, may be employed in working.

The manure of horses wastes and evaporates in the farm yard, or field, much more speedily than that of oxen; and we are perfectly convinced the value of the cattle exceeds, in general, that of horses a fourth part, and sometimes one half.

These are no inconsiderable advantages, but that which far surpasses them is, that every cultivator, who has the least degree of understanding, may annually make of every team of four oxen, a clear profit of 6 *l.* 11 *s.* 3 *d.* or 7 *l.* 17 *s.* 6 *d.* setting their food in opposition to their labour. If he buys his beasts at three years old, and sells them again at four, there is almost an absolute certainty of his gaining a louis and half, or two louis a head. This advantage may be extended much farther when the peasant has a right in any publick pasturage, and can breed his own cattle. Whoever has been informed, that in the greatest part of Switzerland, particularly in the German division of the canton

(8) This is a valuable fact: now if their oxen are equal to those I used in Suffolk, what an amazing superiority to the ox culture! These points of proportion, the expences of certain practices, &c. are very important circumstances, as it is upon a selection of such that these disputable points can alone be reconciled. *

of Bern, a pair of oxen of three years old, that have been in good pasture, commonly sell from ten to fifteen louis, will not be surprized at what I have advanced.

It is far otherwise with horses: besides that their price is subject to very great and frequent variations, there is danger in using young horses for heavy and constant labour. The slightest accident to a draught horse may be a very sensible loss to the farmer, whilst a lame ox is not a straw the worse to be fatted for market. On the other side, if the farmer plows with horses in their full vigour and strength, he has no other advantage to expect than the time they are able to work. He sinks a large capital, which, instead of proving beneficial, wastes every day, and is reduced to nothing at the end of a few years. All these considerations induce our most judicious cultivators to rate the advantage of drawing with oxen instead of horses at 8 *l.* 15 *s.* one year with another (9).

I have the honour to be, &c.

(9) This reasoning is sensible; and as it coincides with our experience in England, on this comparison, there is the greater reason to acknowledge its justness. The arguments here used, are the same as we here most commonly use among ourselves in those counties where oxen are yet worked. Upon the whole, this comparison of horses and oxen highly deserves a farther attention. The Marquis de Mirabeau, in a preceding paper, quotes the *Encyclopedie* on this subject: I have read the memoirs of that work on the subject of agriculture; they are extremely sensible, and call aloud for a translation into English. Among other articles, they contain an elaborate comparison between horses and oxen, decided in favour of the former. This comparison abounds with many circumstances very curious, and throw much light on the subject, and at the same time explain, in a good measure, the reason why the French prefer horses so much. *

Farther

*Farther Anecdotes concerning the Family of Pineon,
mentioned by the Marquis de Mirabeau.*

IN the Journal Oeconomique for December 1755, are two memoirs of the origin of the Pineon family. I apprehend an abstract of them may be agreeable to those readers who have not had an opportunity of meeting with the journal. The facts related are too analogous to the conduct of Kliyogg for me to fear the censure of impropriety in placing them together.

At some leagues distance from the town of Thiers in Auvergne, is a very habitable castle. It was formerly the capital seat of a small barony, called Saudon. About four hundred years since it was purchased by a peasant who had a numerous family, in whose possession it has continued hereditary to this day. This family obtained, at the same time, a perpetual dispensation from the pope to marry within those degrees where marriages are deemed unlawful without one. Such a mark of consideration is a proof of the virtuous regulations that then subsisted amongst these honest people, and likewise their apprehensions of relaxing their discipline and the strictness of their manners, should they form improper connections in their mode of expression, that is, marry out of their own family.

They have a tradition, which carries their origin much higher: that eleven hundred years ago, one of their ancestors, a man of great wealth, the father of a numerous progeny, and advanced in years, recommended some reflections to his children: "That their splendid way of living must be greatly diminished, if, after his death, they should,

" as

“ as was customary, divide his fortune into separate portions; and that, if they were desirous to be better œconomists than the generality of men, he advised them to live in the same united state they had done under his parental roof.” They did not fail to raise many objections to this proposal; the most weighty one was, the privation of an authority, such as he had exercised, which his superior wisdom rendered so respectable. He had foreseen and guarded against all the difficulties they feared; and replied, that good institutions, firmly established, would defend them from all inconveniences capable of frustrating their scheme. The father composed a code for the use of his children, which they most cordially accepted, and have religiously observed ever since.

By these laws the whole parental authority devolves to a general assembly of the family. This assembly discusses their various interests, applies remedies to their grievances, decides what measures are most eligible. A man is not admitted to these deliberations till he is twenty years of age. The assembly appoints a president to pass money accounts, sign resolutions, and conduct affairs in general; but he is restrained within the disposal of ten pistoles in any emergency; beyond that sum the assembly must determine.

They never require of the president an account of his administration; nor have they ever repented this singular confidence. Their great maxim, and the foundation of all their rules, is an implicit reverence for their own family, which is instilled in infancy. This principle is characterized in many anecdotes of their lives. Their second maxim is, never to soar above their original rank. Thus the
Pignons

Pignons (10), which is the family name, have never varied from other peasants in the customs of dress, food, and lodging. They are called by their christian name: the president alone has the title of Mr. They call him Master Pignon. All follow the plough with their labourers.

The children are educated in common without any distinction, by a woman entrusted with the care of them to a certain age. She has also the superintendence of the dairy, and the sole direction of the servants belonging to it.

The family rules extend to domestics, who are to be present at morning and evening prayers, and regular in the practice of all Christian duties.

If any of the younger branches of the family are tempted to detach themselves from it, they receive a decent and just dividend of the public money. It generally happens that these repent, and are desirous to return; but this is a hopeless wish, and against the rules of the Society, which allows no re-admission to those who once abandon it. Notwithstanding a great decrease by sickness for some years past, there yet remain eight heads of families.

The Pignons make the most laudable use of wealth. They are charitable to the poor and hospitable to strangers: they are beloved, esteemed, and honoured. Many noble families, as well as those of peasants, have unsuccessfully attempted to imitate their rule of life. The former have degenerated into parties of pleasure; the latter found it impracticable to arrive at that point of concord and prosperity which distinguishes the family of Pignon. Undoubtedly none of those have laid the same per-

(10) M. de Mirabeau calls it Pineon; but I suppose Pignon is the provincial way of sounding it.

manent foundation for the happiness they were in search of, in piety, benevolence, disinterestedness, simplicity, and attachment to agriculture, qualities, without which it is impossible to form a society, or procure peace and competence.

Several intendants of that province have gratified their curiosity in visiting the Pignons. M. le Blanc, since secretary at war, dined at the castle, was honourably entertained, and insisted on Master Pignon's presiding at table. Delighted with their manners and customs, he made a recital of them to Louis XIV. Some time after Master Pignon was obliged to go to Paris on particular business: he paid his compliments to M. le Blanc, who presented him to the King. Louis asked him several questions, and was so charmed with his replies, that he ordered the tax of the Pignons should never exceed six hundred livres; and made him a present to defray the expence of his journey.

These are the most interesting particulars in the first memoir. The second differs from it in several articles. It is true they were wrote in different years; the first is dated in 1739. The second is a recent account, but this does not sufficiently explain the variation between them. How much it is to be wished that the Marquis de Mirabeau, or some other friend to human nature, would take the trouble of receiving exact and circumstantial information on the spot, of all that relates to this extraordinary family! The public would esteem it an invaluable present. In expecting that pleasure, I shall give the purport of the second memoir.

The Pignons, masters of Saudon, about half a league from Thiers in Auvergne, have lived there near three hundred years. Their common estate brings in more than two hundred thousand franks, consisting

consisting of meadows, vineyards, arable land, and other heritages. But they have no lordships or manors, excepting the fief of Saudon, which is of small value.

This family has branched into four divisions, who live together within the same walls. There are four chiefs of the family, who keep with honour equal number of both sexes, who choose to intermarry and succeed their parents, whilst the rest of the children are settled in the adjacent villages with a fortune of 2*l.* 17*s.* 6*d.* The daughters have also a chest of linen, and some household furniture of small value, such as the peasants require; the Pignons not being, in outward appearance, different from their labourers.

The master is the only man amongst them who wears leather shoes. The women wear them because they never work in the field. There is particular care bestowed on their education. They are maintained in a convent at the public expence, till of an age to become a part of society. If it happens that one branch of the family has only a daughter, who is consequently heiress to one fourth part of the estate, they contrive to marry her to the son of another branch, to keep up the number of their chiefs.

They take care to impress their children's minds, so soon as reason begins to dawn, with the highest respect for their own family and its institutions; nor has there ever been an instance of any of the chiefs entertaining the most distant idea of separating from the community, nor of any of the sons or daughters, who have left the castle, desiring any addition to their fortune, small as it is. About forty years ago, the widow of one of their chiefs, who had an only daughter, was solicited to marry one of the neighbouring gentlemen, as a means of establishing her daughter, who, with the large fortune she

she was entitled to, might expect to be very advantageously disposed of. This worthy woman answered in her provincial dialect, she never could consent to put such an indignity on the family and customs of the Pignons!

Though property is equally divided amongst the four chiefs, the principal authority rests upon the master, who is chosen from the rest.

The castle is large, but the apartments are furnished in the most plain, simple taste. M. de la Granville, who was travelling that way, stopped at Master Pignon's. Some of the company were for advising the master to furnish an apartment elegantly, as a mark of distinction; but the intendant, wiser than they, demonstrated to them that this uniform simplicity was essential to such an establishment, and that when once they made a distinction in apartments, it would be soon followed by other innovations that would interrupt the happiness of this little republic.

The Pignon family are remarkably bountiful to poor travellers, who are cordially received, fed, and even lodged, if they chance to be benighted: they also receive their guests with civility and respect, providing the best entertainment in their power, according to the difference of rank, which makes them exceedingly honoured and esteemed in the province; and what Master Pignon decides, in any controversy, passes in general, with the peasants, for an infallible decree.

I cannot forbear communicating the pleasure I received from the rational, judicious reflections of the journalist at the end of this memoir, with which I shall conclude. "We should accuse ourselves," says he "if we neglected to recommend to observation, these solid effects of agriculture: the plenty it procures, the concord it maintains, the

A a

"tranquillity

“ tranquillity it bestows! By its influence, labour
 “ is softened, jealousy extinguished, equality re-
 “ stored! What extraordinary blessings may we not
 “ hope to obtain, if the most intelligent and en-
 “ lightened persons were animated with zeal for
 “ rural œconomy, when we see it productive of
 “ great wealth even amongst simple peasants! What
 “ an accession of opulence and strength to a state,
 “ to have a collection of these small republicks
 “ formed within itself! A manly and sublime sim-
 “ plicity would succeed to effeminate luxury: mo-
 “ deration, the daughter of industry, would be
 “ assiduous in making a proper use of riches thus
 “ acquired, and mankind would at last be con-
 “ vinced, that the most infallible means to defy
 “ poverty, is resolution to renounce the allurements
 “ of affluence, and to fly, with precipitation, from
 “ those immoderate indulgencies which wealth can
 “ purchase. Children, educated in these maxims,
 “ would renew that purity of manners, whose loss
 “ is more to be regretted every day; whilst the
 “ earth, cultivated by their innocent hands, would
 “ no longer disappoint, by its sterility, chimerical
 “ expectations. Surely we have more resources
 “ than the terrible consequences of a dreaded re-
 “ volution to bring us back to a life which has na-
 “ ture for its guide.”

Anecdotes

Anecdotes of the Family of Fleuriot, known in Lorraine by the name of Valdajon.

THE piece before us is a production of the Count de Tressan's (11). In reading the Rural Socrates, he recollected the several particulars of a journey he took some years since, from a curious desire of gaining a perfect information concerning a family of peasants, as philosophical, and perhaps even yet more to be revered than Kliyogg's; whose character and institutions peculiarly affected the penetrating humanity of M. de Tressan. He not only paid due deference to the proceedings of M. Hirzel, but the friendship which he condescended to honour me with, palliated, in his indulgent breast, the imperfections of my translation; nor did he disdain to oblige me with a copy of his own memoirs of the Fleuriots, as an appendix to the Rural Socrates: where one discerns the same engaging sensibility of heart, apparent in every thing he writes. Why will his modesty forbid me to praise him to the world? It would not be the lustre of his birth or employments, his military honours, or martial talents, that I should enumerate: the literary distinctions granted to the universality, comprehensiveness, and elegance of his genius; the charms of his wit, or that profusion of graces in his person, conversation, and writings, that would make the most interesting part of my eulogium! The wise

(11) Lieutenant General in the French service, governor of Bitche and German Lorraine, lord chamberlain of the household to King Stanislaus, and member of the Academies of Sciences at Paris, Berlin, London, Edinburgh, Nantz, Metz, &c.

and virtuous part of mankind, would have more subject for admiration from the beauty of his soul; the singular goodness of his heart; that expansion of its beneficence and humanity to all within its circle of observation: that inestimably tender sensibility, which makes good husbands, kind fathers, and true friends: in fine, those virtuous sentiments, which are productive of the most ardent zeal for his country, and the most affectionate regard for his royal masters.

Personally attached from infancy to the King of France, he seems to live only to serve him. He is tenderly devoted to the Dauphin, and that Prince, whose virtues are a sufficient title to the throne he is born to, by a just return, gives M. de Tressan all his confidence and esteem. Equally beloved by Stanislaus, he fills one of the first employments in his court. This wise, learned, and philosophical monarch could never bestow his favour on a more worthy servant, and few masters have so well merited to be surrounded with men like M. de Tressan! Nothing is more striking than the reciprocal sentiments which unite the General and this beneficent Prince, whose uncommon excellence is so much superior to my pen!

A league and a half from Plombieres, in that part of the Vosges, which borders on Franche Comté, a pretty extensive valley is formed by the several openings betwixt the hills, which has a pleasing and chearful appearance from the visible skill and assiduity of the industrious cultivators.

They consist of a single family, who occupy four or five houses; they are brought up in the same principles and equality, are governed by a chief, whom the community gives the preference to, from his superiority of wisdom and experience: they are incessantly employed in assisting the public, in educating

cating their children, in comforting the distressed, and in tilling the ground.

This family, whose name is Fleuriot, is better distinguished by that of Valdajon, which the country and village bears that it inhabits.

For some centuries past the chiefs have principally studied that part of surgery which consists in curing fractures and dislocations. Repeated cures have added reputation to their knowledge; whilst remarkable piety, and immense charity have justly acquired them the character of virtuous men.

The most peculiar modesty, the sincerest paternal tenderness, are conspicuous in the manners of this happy family, which is now sufficiently numerous and remote from those near ties of consanguinity that might, in early institutions, have obliged them to contract foreign alliances.

The late Duke Leopold, touched with admiration of the virtues inherent in the Fleuriotics, and sensible, that, by a succession of good offices to their fellow creatures, they merited a Civic Crown, and had proved the greatness of their souls by the most disinterested benefactions, was desirous to ennoble them.

The family assembled, and the heads of it were unanimous to return their grateful thanks to their sovereign for the honour he intended them, and to decline the acceptance of it. "Our posterity, said they, in an address equally wise and dutiful, may, perhaps, see objects in a different light from ourselves; intoxicated with the pride of nobility, they may dispense with the duty of relieving the poor; despise the cultivation of their estate: the blessing of heaven will no longer prosper their undertakings; discord will divide their affection, they will cease to be happy." They refused a patent of nobility,

bility, but that traced in their-souls must always remain indelible !

The cures performed by the Fleuriots are almost incredible, and have often excited jealousy and envy.

The first time I was at Plombieres, I informed myself particularly in what related to them : as I commanded in that part of Lorrain, it was easy for me to investigate the truth of all I wanted to know.

Some with whom I conversed, talked of the Fleuriots with as much regard as admiration; whilst a very small number, who, I thought, ought to have understood the subject best, seemed desirous to varnish with superstition and ignorance the process of the Fleuriots in their surgical operations. Truth appeared to me clearest in the most favourable reports : I regarded it as an honourable duty to examine facts with my own eyes, and to take proper precautions not to be deceived.

As I have always, at leisure hours, made anatomy one of my studies; I understood enough of it to distinguish real science from imposture.

I rode to Valdajon privately, with only one attendant, in a plain dress, as a stranger that chance had brought to their habitation. I stopped at one of the first houses, and, on my entrance, every thing I saw edified and affected me. It is with difficulty I restrain my inclination to describe minutely the neatness and regularity of the apartments and furniture, with the friendly civility of the inhabitants. I recognized the simple and engaging marks of genuine hospitality. As the peculiar motive of my journey was to know the degree of knowledge the most skilful practitioners among them had attained in an art founded on certain and infallible principles; after some comfortable refreshment, I
admired

admired their system of rural œconomy and their interior domestic government. I then enquired if they had any books; they answered, that their chief collection was in a house at a small distance, belonging to one of the ancient chiefs of the family. They carried me there, and I was received by a venerable old man, who, under an air of rusticity, displayed the most obliging politeness. It was easy to introduce the subject: I enquired what were the principles of the art he practised. He replied, "Nature, experience, and good books, were the only instructors of my forefathers; they are mine, and this tradition shall be transmitted to my children." He then opened a large closet, of simple architecture, but rich in the furniture it contained: I here found the best collection of ancient and modern chirurgical authors; skeletons of four or five different ages; some of whose parts were divisible, and, when taken in pieces, shew the ingenuity of an artist in their re-union; also some curious figures that explain the muscular system, or myography.

In this apartment, said he, we study that science which is necessary to the relief of our fellow creatures. We also teach our children to read, and to understand what they read. Those who have genius and disposition for it know the names and uses of the several parts of anatomy before they are ten years old: they can separate and join them together. Here is a large press, filled with ligatures and bandages for every kind of operation, all numbered, with their uses defined. We accustom them, very early, to unite practice with theory. The greater part of those goats you see browsing, even our dogs, are often the victims of that species of cruelty we are necessitated to exercise upon animals. To appease that sensation of pity we wish to ex-
cite

cite in the hearts of our children for their complaints and sufferings, they are eager to be instructed how to heal them. These are all the lessons I ever was taught : they are such as we bequeath to our children, and the benediction of the Supreme Being attends our endeavours for the good of mankind.

I am unable to express the respect and tenderness I am impressed with. I embraced this worthy old man. I discovered who I was, and entreated him as a favour that he would acquaint me how I could be of real service to himself, or any of his family.

He pointed to the houses in the valley, surrounded with corn-fields and gardens. " The prospect before you," said he, " gratifies the extent of our wishes. Providence has been bountiful to our labours; we have even something to spare for the wants of the unfortunate. Every superfluity, beyond what our small expence in dress and food requires, would be unnecessary; it might even become pernicious, by inspiring our descendants with an inordinate desire for wealth and opulence. But, Sir," added he, " you have the happiness to enjoy a distinguished office in the court of our dear and august Sovereign Stanislaus! Vouchsafe to acquaint him we offer our fervent prayers to heaven for the continuance of his precious life; and that the Fleuriots will always endeavour to be useful to the wretched, that they may deserve to be ranked amongst the most loyal subjects of the most beneficent of all monarchs!"

If relations of the most dissimilar and compound fractures, cured in the same subject, were required, I could give several that were completed under my own observation.

The

The Marquis de Voyer and Monsieur de St. Lambert, whose genius and understanding are universally allowed, have had equal curiosity with myself, and are ready to certify the fact. I shall not enter into a detail of their experiments in agriculture: it is easy to conceive that persons so intelligent and well read in the book of nature as the Fleuriots, have acted, nearly on the same principles with the wise and industrious Kliyogg. A parallel between them could not fail of doing honour to human nature, and of affording excellent rules of life. The effusions of the feeling heart, and the approbation of the thinking head, are a just tribute to the virtues of these men, too seldom found in the world, and whose example is so worthy of imitation.

Can any one be so insensible to this pleasing narrative of the Count de Tressan's as not to be deeply impressed with his description of the Fleuriot family, and desirous to be minutely informed of every circumstance that concerns them? The Journal Oeconomique for December 1755 (already quoted), has an interesting letter from Mr. Morand, M. D. of Paris, whose testimony would be very decisive, if any could be wanted after that of Count Tressan's. The Doctor's was a more transient view than the Count's, but he saw the most essential part in the same light.

He does equal justice to the abilities of the inhabitants of Valdajon; was equally accustomed and delighted with the simplicity of manners, conduct, food, and dress: "Content with their lot," says he, "they confine their wants to the plain necessities of life, rejecting all beyond them as superfluous. Their table is furnished like the ordinary peasant's; like him they eat rye-bread and bacon, and water is their only beverage. They attend
" to

“ to the employments of agriculture alternately,
 “ never ride, and are unwilling, on any occasion
 “ of absence, to return home in a carriage. Gold
 “ and the trappings of wealth, vain phantoms of
 “ happiness! are banished from their hearts: two
 “ or three louis are, in their opinion, too large a
 “ fee from rich men, which they have several times
 “ refused, and are contented with six or twelve
 “ franks at most. Every Tuesday some of them
 “ go to Kemiremont, the rest of the week to Plom-
 “ bieres and other adjacent villages. At these
 “ places they have sometimes forty poor patients
 “ with bruises, contusions, and dislocations, whom
 “ they attend and cure gratis, or without consider-
 “ ing who is to pay them! They even frequently
 “ supply them with money to return home, and
 “ give them a box of their ointment, which is
 “ their greatest secret and their greatest treasure.
 “ They affirm their family possess the true receipt
 “ of a sovereign balsam, known by the name of
 “ the Valdajon ointment, which is in high repute in
 “ Lorraine, and is a very good resolvent medicine,
 “ lenient, and a strengthener of the nerves. The
 “ family of Valdajon use it in contusions, irritati-
 “ ons of the nerves, laxativeness, fractures, and
 “ even where there is danger of gangrene. It also
 “ alluages the pain of the gout or rheumatism.
 “ They only spread it on lint, without warming
 “ the ointment.”

Who can have any doubts remaining, after these
 instances of the Kliyoggs, Pignons, and Valda-
 jons, that Dr. Hirzell has not the strongest reason
 to affirm that the class of peasants is as well worthy
 of philosophical inspection as any other race of be-
 ings? Let the agreeable man of fashion confine his
 attention to the marks of distinguished breeding
 and education, only to be met with in what he calls
 the

the best company. Let the merchant visit those countries where commerce flourishes, to gain an insight into the mercantile talents, abilities, and nature of traffic carried on by his neighbours. Let the man of taste, the admirer of the fine arts, examine the cabinets and galleries of the great, the laboratories of the artist: let the indefatigable antiquary pore over the monuments of remotest times; but let the true philosopher, the friend of humanity, employ his hours in the search of men truly virtuous! discover them through the shade of obscurity, shining in those ranks of life that are deemed most abject in the opinion of the so much boasted polite circle; he will surely meet with some of these Kliyoggs, Pignons, and Valdajons, who are yet unknown: for true merit shuns the blaze of admiration, and remains invariably attached to that state of simplicity with which the world disdains to be acquainted. The true philosopher will neglect no opportunity of studying their manners, or of communicating them to the public; like Treffan, he will travel to their cottages, or, like Herzill, he will seek them at the plough: he will be eager to paint their virtues and good actions, not to flatter their self-love; for to such men fame has no other charm than the hope that exemplary patterns of goodness may, at least, from their novelty, make some impression. If representation of vice seduce so many to be guilty and unhappy, why should we suppose those of virtue will not have the same efficacy?

F I N I S.

